GAS JOURNAL

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COKE OVEN PROBLEMS

"THE ovens come first." This tradition among coke oven managers remains unchanged. The spirit of the tradition has been put to the test and has not failed during the transformation of ownership of coke oven plant and services. Coke oven managers have, during a period of upheaval and irrespective of private view, to the best of their ability kept the coke ovens working smoothly. The problems have not been light; and there are many present difficulties. Among these difficulties is the quality of coal supplied to the ovens. Coals are being coked to-day with ash contents unheard of in pre-war days. Effort is being wasted in winning, raising, transporting, processing, and finally disposing of useless material. The while research is being undertaken in all directions to improve efficiencies throughout the carbonizing process. The gas industry well understands the difficulties and is, with the coke oven industry, aware of the paradox. These contradictory aspects of current carbonizing practice were emphasized by Mr. G. M. Nave in his Presidential Address on Friday last to the Coke Oven Managers' Association. Mr. Nave emphasized, too, the need, now greater than ever, for close collaboration between the coke oven industry and the gas industry in the solution of common problems. The tendency is, we feel, all the time towards closer co-operation.

Mr. Nave mentioned that on the onset of nationalization the collieries owning coke ovens withheld the placing of orders for the rebuilding of coke oven plant till the position was clarified, and that since vesting date the new administration has not only been unable to make up for lost time but has not placed the necessary orders to ensure even a steady replacement rate. Again, there is the shortage of refractory materials, due to lack of the necessary labour force in the refractories industry; and this shortage of refractories is likely to prove a most formidable obstacle in the expansion of the coke oven industry to meet the growing demands. Mr. Nave envisages a period of acute shortage lasting anything up to five years while the refractories industry is being geared up to meet the demands of the coke oven industry and the gas industry. "Reduction in brick costs cannot be expected, and with the rising cost of labour in addition to more expensive methods of production the cost of the silica shape may well be greater in proportion to the silica brick than it is to-day." These and other problems, however, constitute a challenge which, from our knowledge of the coke oven industry, will be taken up and answered positively. There is certainly no room for any feeling of "What's the use of it all?" Equally, there is urgent need for less red tape, fewer regulations and controls, and less uncertainty concerning the outcome of planned or semi-planned schemes. The field is vast, and enthusiasm in its development in the interests of the community should be fanned by defined incentives, not damped-down by a haze of officialdom. Expansion of the coke oven industry should, and to our mind will, present more opportunities for worth-while careers for technically qualified young men—better opportunities than have hitherto existed. And in regard to education the Coke Oven Managers' Association is destined to play an important rôle. Already good results have accrued from the step which the Association took during the war years to make the possession of qualifications necessary for admittance to associate membership, and the contact with the Institution of Gas Engineers which the Association is preserving on educational matters holds out promise.

RESPONSE TO CHALLENGE

THERE is strong internal evidence that before writing his Presidential Address to the Manchester Juniors, Mr. H. N. Dann had been reading Arnold Toynbee's fascinating *Study of History*. In this work, one of the chief elements in the life stories of civilization is shown to be the response to challenges, of various types, pressures from competing civilizations, from environment, and so on. Mr. Dann applies this conception to the life story of the gas industry. There are the external challenges of the pressure exerted by other forms of energy seeking to meet the same demands, of which oil and electricity are the most obvious examples. There are the internal challenges resulting from the lag in the provision of the necessary materials and in the perfection of technical methods of construction, the effect of restrictive legislation, and the present shortage of labour and materials. But, Toynbee warns us that we cannot always accept the truth of the dictum, "The greater the challenge, the greater the stimulus." Sometimes the challenge fails to evoke sufficient response. Sometimes it is so formidable that the challenged goes down before it. "The real optimum challenge is the one which not only stimulates the challenged party to achieve a single successful response but also stimulates him to acquire momentum that carries him a step further."

It is no doubt true that industries follow the same course as those greater entities of which they form part, growing in reaction to similar stimuli, collapsing when their vitality wanes either from failure to respond to challenge or by decay in the quality of the personnel who man the industries. The principal challenge in the past, and one which caught the gas industry in a mood of complacency, following a long enjoyment of something like monopoly, was that of the rapid popularization of electricity supply in the early years of the twentieth century. The industry was quickly awakened out of its complacency, set itself to the invention and perfection of new methods to increase its efficiency of manufacture and utilization, and took the step further to an unprecedented expansion. Opinions still differ on the question whether some of the response to this challenge was wise. One of the modes of maintaining and restoring the vitality of a civilization described by Toynbee is that of "withdrawal and return." The challenged gives way before pressure, retires to brood on the position, to develop another

form of activity, and finally returns to achieve success in another direction. This is not the place to quote his examples. The point as we see it is that the gas industry might well have given up some of the fields, such as lighting, in which electricity was certain to win, the better to concentrate upon the satisfaction of types of demand to which it was better suited. To a certain extent it did this, with the result that gas to-day successfully occupies fields of domestic and industrial heating which did not reveal themselves when the pressure of electrical competition was first felt. This may be deemed an apt example of "withdrawal and return."

There are further challenges before us. One, already apparent, is that of district heating. Perhaps it is an old challenge in a new form, for it is the electrical industry which is now putting forward claims to apply the heat rejected in the exhaust of its steam turbines, now wastefully and expensively cooled by water, to supplying space heating. Are we to accept the peak loads of winter, only to be met at a high cost, or are we to respond with a comprehensive system of full-heating with gas and coke? Another challenge, soon to be felt to the full, is that of nationalization. And here we may return to Toynbee. He points out that growth in a civilization is the product not of the dull average mind, but that of individuals or minorities of outstanding vision and ability. But these leaders "must make their fellows their followers." That is where, in the gas industry, the technical associations and institutions come in. They provide the platforms on which the slogans of the advance may be sounded and allegiance won.

At the highest level it must at no distant date be decided what is to be done about the distribution and utilization of our coal supplies—not so much, it now appears, the aggregate of the supply as the amount which is likely to be annually available. To what extent are they to be used now, and through the medium of what form of energy are they to be applied? At that level the battle must be fought out by responsible executives. An address such as that of Mr. Dann should encourage our leaders in the assurance of the support of the Junior Associations. We say with certainty that the lead the responsible heads give will be backed by a spirit of single-minded service to the community.

SOUTHERN ASSOCIATION

There can be little doubt that Mr. L. P. Ingram will be the last "private enterprise" President of the Southern Association of Gas Engineers and Managers. There can be little doubt, too, that when he relinquishes office the stature and influence of the Association will be undiminished and its possibilities of useful work within a nationalized gas industry greater than ever before. Mr. Ingram's address is published on later pages; it deals with the preservation and the development of a high professional status for administrators and technicians who, irrespective of ownership, will have to run the gas industry from day to day. Again irrespective of ownership, specialization is becoming more, not less, necessary, with the inevitable impetus of regional grouping. This very trend, however, makes all the greater the need for associations such as the district gas associations, through the medium of which specialist workers, instead of remaining in watertight compartments, can meet workers in other fields and share more vividly and more personally in the common inerest. In this regard we would refer to the remarks of the Chairman-designate of the Gas Council, Mr. A. E. Sylvester, who said that never was the need greater than now for engineering and technical skill; and "the Association, affiliated as it is with the Institution, can look back on an admirable past and look forward to an even more brilliant future." At the close of the meeting of the Southern Association, Mr. W. H. Bennett, Chairman of Associated Gas and Water Undertakings, Ltd., and of the Taunton and District Gas Company, of which the President is General Manager, extended to members an invitation to visit Taunton next June. By that time it is likely that the Company will be vested in the South-Western Area Gas Board, but we are glad that the Ministry of Fuel and Power has authorized the Company to meet the expenses incurred in connexion with the visit. This practical encouragement is a good augury.

BRITISH ROAD TAR

Nationalization of the gas industry will entail changes in the constitution of the British Road Tar Association, but the need for such an association, whatever its form may be, will tend to increase rather than diminish in the new order. The B.R.T.A., whose recent activities are reviewed in later pages, is not a commercial organization; it does not sell tar or fix prices, but by research, experiment, technical service, and propaganda it seeks to improve the quality of tar and the methods of using it. It was formed by gas undertakings, coke ovens, and tar distillers soon after the first world war, when road tar got a bad name because of the questionable material that was then sold and put on the roads, and since that time it has, in collaboration with the Department of Scientific and Industrial Research, the British Standards Institution, and road engineering interests, raised both the quality of the product and the methods of application to new high levels. Through the initiative of the Association of Tar Distillers, there has recently been set up the Coal Tar Research Association, and the B.R.T.A. has promised to co-operate closely with the Association so far as road tar investigations are concerned. Variations in coal quality and methods of carbonization result in wide variations in crude tar quality, and the real job of the Association is to find ways of producing a reliable, standardized road tar from the "mixed grill." One effect of the nationalization of the gas industry will be that with what has already been nationalized 80% to 85% of the country's crude tar output will be owned by the State, and if the Bill for the nationalization of the steel industry becomes law, probably the whole of the crude tar output will come under the control of the Government. The fact that the total production is under one proprietorship will not lessen the need for work such as the B.R.T.A. has been doing for well over 20 years. There may well be, for some time, a continuation of the present restrictions on road works, but the day must come when a large volume of reconstruction and new construction must be undertaken. The research which the Association has carried out and its steady dissemination of technical information will then bear good fruit.

A NEW SOURCE OF GAS SUPPLY

A supply of rich oil gas will be introduced at the end of this year to augment Manchester's town gas supply. Petrochemicals, Ltd., are erecting a new petroleum chemicals plant adjacent to the Partington Works of the Manchester Gas Department and will supply daily 600,000 cu.ft. of high calorific value gas (890 B.Th.U. per cu.ft.) free from sulphuretted hydrogen. The naphthalene content will not exceed 0.1 grain per 100 cu.ft. This gas will be used as an enricher of the gas made from a Humphreys and Glasgow C.W.G. plant in course of erection, of a capacity of 6 mill. cu.ft. a day. The balance of blue water-gas production not enriched in this way will be enriched in the usual manner by carburetting with gas oil. The Manchester Gas Committee has also entered into a contract with the Woodall-Duckham Company for an installation of continuous verticals capable of producing 4 mill. cu.ft. per day. When the composite extensions are complete the Partington Works will be able to transmit 18½ mill. cu.ft. of gas per day—two and one-third times its present capacity. This programme was outlined during an official visit to the works reported in this issue of the "JOURNAL." This visit was preceded by a luncheon in the Town Hall, presided over by the Lord Mayor of Manchester. We were privileged to attend this luncheon and to inspect the Partington Works. There was an atmosphere of sadness over what will no doubt be the last function of the kind under municipal administration. "It is not without a pang," said the Lord Mayor, "that we are to experience the passing of the works into other hands." We feel sure, however, that the services rendered in the future by the personnel responsible for gas supply will be rendered as conscientiously as in the past. There is certainly scope for optimism in the Manchester area. Since 1939 there has been an increase in the demand for gas amounting to 43%. Large industrial loads are under consideration.

"THE NATION'S WEALTH"

Maintaining a standard is much more difficult than setting one, and it may well be that the British Gas Council's latest Gas Industry House exhibition, "The Nation's Wealth," will not eclipse its predecessor. "Publicity Parade" was a specialist exhibition designed by publicity men for publicity men, and of genuine but incidental interest to them. In contrast, "The Nation's Wealth" follows a beaten track in that it

purports to tell the story of the gas industry and its by-products, primarily for the benefit of those outside it. The potential audience is larger, but the message is something of a repetition. This being the case, the only hope of success lay in presenting the old friend in new guise, and making the display of sufficient interest to attract even those who have "seen it all before." Whether or not the B.G.C. have succeeded in doing this will be demonstrated during the months to come. We believe that they have, and we would go farther and state that the story of the economical use of coal has never been better told. At a preview of the exhibition, we were impressed by the logical progression of facts, the effective simplicity of the presentation, and the avoidance of waste of words. It would be ridiculous to claim for the exhibition any conspicuous originality—the subject is too familiar for that—but it can be claimed that there is much of interest, and this applies particularly to youngsters who should be enraptured with the many fine models. The B.G.C. designers are again to be congratulated on a fine job and we have in mind not only the difficulties mentioned above, but the limited dimensions of the hall. No comment on the exhibition—which will be described in greater detail in a later issue—would be complete without mention of the booklet produced in connexion with the exhibition and bearing the same title.

DEVELOPMENT AREAS

With the economic state of the British Isles to-day as it is there is a reasoned case to be made out against the "development areas" laid down in the Distribution of Industry Act, 1945, which empowered the Government to give special help to new or expanding industries in areas where unemployment was particularly heavy in the years between the wars. It may be argued that the establishment of new light industries in areas where heavy industries predominate can only serve to attract labour away from heavy but essential tasks to more congenial though just as highly-paid jobs in less important factories, and that when a "buyer's" market exists it is just these new industries which are the first to feel the pinch and to start dismissing workers. Be that as it may, the Government has determined to go ahead with the plans for subsidizing developing industries, and it is clear that the gas industry, for the sake of its industrial load, must pay especial attention to these new sources of demand. Two additions have been made to the list of development areas, Merseyside and parts of the Scottish Highlands, and a number of minor adjustments have been made to the boundaries of existing development areas. The Government does not consider that the policy of aided industrial development in these special areas can yet be abandoned, but it does not think that it ought to be extended at all widely. Claims have been made for a good many parts of the country, including North Wales, South Yorkshire, Furness, North Staffordshire, West Cornwall, the Forest of Dean, Plymouth, Portsmouth, Hull, and a number of holiday towns. The arguments for and against are set out in a new White Paper but, essentially, they have been dismissed because the Government believes that there are other methods available for dealing with the problems in these places. The development plans for the steel and chemical industries are bringing material improvements to the Development Areas, says the White Paper, but these are outside the kinds of "special assistance" envisaged by the Act.

OFF THE TARGET

The Chairman of the National Coal Board, Lord Hyndley, has had a sorry admission to make, ironically enough in a speech under the title of "Progress Since Vesting Date." "I wish that I were able to tell you that we are in a fair way to producing the 200 mill. tons for which the Government has called," he said. "Although we have in the 9½ months of this year already produced 8½ mill. tons more than in the corresponding period of 1947, we are far behind in our programme. That is why a drive for an immediate and substantial increase in production has been started." The duty and desire of the Board to be a good employer and their duty to get coal more urgently, do not conflict, Lord Hyndley said, nor should the two sets of duties ever come into collision: although over-generosity to the workpeople could conflict with the Board's duty to serve the national interest. Though the response of the workers to the Board's "practical proof of their good intentions" has been good, on the other hand unofficial strikes had not been eliminated, and there had not yet been the general acceptance of extra tasks which the Board had hoped for. Speaking of the Board's financial results, Lord Hyndley said that the improvement in the status of the mineworker had not been brought about without cost. He had said on more than one occasion that the Board looked to increased effort by the men and greater efficiency of management to make good these increases in costs. "We as a Board realize how important an element in the national economy is the price of coal, and we have been at pains also to impress this fact on all employed in the industry." The short-term schemes of mechanization and other technical improvements had been directed at increased productivity, which should in turn have its effect on costs. But none of these managerial actions could be a substitute for hard work. Lord Hyndley also reported that the Committee appointed under Sir Robert Burrows to examine the organization of the National Coal Board and to make recommendations had completed its work. "I am glad to be able to say that our main decisions on organization—the grouping of collieries into Areas and the organization of the coalfields under Divisional Boards—were endorsed by the Committee. Some of the Committee's recommendations we have already anticipated and put into effect; others we shall, I am sure, accept; others may need modification before adoption; others we may have good reasons for not accepting."

Personal

Mr. LESLIE HARDERN, Public Relations Officer to the Gas Light and Coke Company, has been elected to the Council of the Institute of Public Relations.

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The new President of the Eastern Junior Gas Association, succeeding Mr. H. J. PATCHING, of Peterborough, who has resigned on obtaining a post at Montevideo, is Mr. J. S. MARSHALL, Deputy Engineer of the Lincoln Gas Department.

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Sir ROBERT ROBINSON, F.R.S., President of the Royal Society, and Mr. W. L. TREGONING, Industrial Adviser to the Finance Corporation for Industry, Ltd., have joined the Board of Petrochemicals, Ltd. Sir Robert Robinson has also joined the Board of Petrocarbon, Ltd., an associated Company.

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The Leicester City Council has appointed Mr. W. A. PASK, who is at present Deputy Engineer to the Darlington Gas Department, as Deputy Engineer and Manager of the City of Leicester Gas Department. Mr. J. B. WALSH, Distribution Engineer at Stockport, has been appointed Distribution Engineer at Leicester.

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Mr. T. B. SCOTT, Secretary of the British Gas Council, has been appointed a Member of the Joint Study Committee of the Institutes of Industrial and Public Administration, set up to consider the principles and practices of management in industry and their application to the public services. The Committee meets under the Chairmanship of Mr. J. R. Simpson, C.B., Director of Organization and Methods Division, H.M. Treasury.

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Mr. NORMAN GAUNT APPLEYARD, M.Inst.Gas E., M.I.F., A.M.I.M.E., Assistant Engineer and General Manager, Leeds Gas Department, has, subject to confirmation by the City Council, been appointed Engineer and General Manager in succession to Mr. C. S. Shapley, who is retiring shortly. Mr. Appleyard is Vice-President of the Manchester District Association of Gas Engineers, Deputy-Chairman of the Yorkshire Commercial Section of the Association, representative on the Management Committee of the Yorkshire Gas Coke Association, and representative of the Manchester Association on the Yorkshire District Gas Education Committee. Educated at Leeds Central High School, University and College of Technology, Mr. Appleyard started his gas industry career as Assistant Chemist with Leeds Gas Department, and served during the first world war as an officer of the Special Brigade of Royal Engineers and the Royal Air Force, returning in 1919 as Superintendent of the New Wortley Gas-works. His subsequent appointments were as Assistant Manager of the New Wortley Works, Works Manager at Meadow Lane Works, Leeds, and in 1944 Assistant Engineer and General Manager.

The Information Section of the Department of Scientific and Industrial Research has moved to Rex House, Regent Street, London S.W.1 (Telephone Whitehall 9788). For the time being the remainder of headquarters of the Department will remain at 24, Rutland Gate, London, S.W.7.

Obituary

Mr. Henry Woodall

Colonel H. C. SMITH writes: While his many friends in the gas industry will mourn the passing of HENRY WOODALL their sorrow will be lessened by happy memories of his lovable personality. Great as was the contribution he made to the industry's success during the past 60 years, we shall remember him best as a sympathetic and considerate employer and as a delightful colleague and friend. He was always proud of being an engineer, and particularly of being a gas engineer. Serving the industry was not only to him a full time occupation; it was also his hobby. He never grudged any time given to furthering the affairs of any of the companies over which he so ably presided, and no gas engineer or official of a gas undertaking ever went to him for help or advice and came away empty handed. The welfare of those employed in the industry was ever close to his heart and he never tired of discussing schemes for its advancement. When he gave his confidence he gave it in full measure and inspired those working with him to give of their best. Slow to blame and quick to praise, he shared in the sorrows and rejoiced in the successes of his friends.

In his younger days a keen cricketer and Rugby footballer, he retained his interest in national sports to the end. He had a great sense of humour and the merry twinkle in his eye generally appeared even when he was most critical. He had no use for anything cheap or shoddy and his generous nature was reflected in everything that he did. Many will remember his letters of appreciation and encouragement for the future received at the close of the year. It would have been much easier to send more orthodox greeting cards but those would not have conveyed his good wishes as he would wish to express them. He will be greatly missed and long remembered with affection by all who were privileged to know him.

The death occurred on Oct. 22 of Mr. F. N. SKINNER, who was for 33 years Engineer, Manager, and Secretary of the Martock and District Gas Consumers' Company, and who was recently made Managing Director. Mr. Skinner, who was 59 years of age, leaves a widow, a daughter, and a son.

Diary

Nov. 9.—**Wales and Monmouthshire Junior Gas Association**: "Random Thoughts on the Application of Town Gas to Industry," T. D. Baker (Llanelly). Inspection of Llanelly Works.

Nov. 10.—**London and Southern Junior Gas Association**: Visits to Whitbreads Brewery, Moorgate; and Tate & Lyle's Refinery, Silvertown.

Nov. 11.—**Yorkshire Junior Gas Association**: Visit to the works of W. C. Holmes & Co., Ltd., Huddersfield, and of Messrs. David Brown (Huddersfield), Ltd.

Nov. 15.—**London and Counties Coke Association**: Finance Committee, 10.30 a.m.; Executive Committee, 11 a.m.; Central Committee, 11.30 a.m.; Grosvenor House, W.1.

Nov. 19.—**London and Southern Junior Gas Association**: "The Production and Use of Film Strip as a Visual Aid in Training and the Presentation of Technical Papers," R. N. LeFevre; and "The Publication of Technical Papers," Clifford A. King. Gas Industry House, 7 p.m.

Nov. 24.—**Western Junior Gas Association**: Visit to Weston-super-Mare. "The Application of Electricity on Gas-works," E. N. Evans (Lancashire Dynamo & Crypto, Ltd.).

Nov. 30.—**Southern Association of Gas Engineers and Managers (Eastern District)**: "The Place of Transport Service in the Gas Industry," H. M. Lawrence, Transport Manager, Gas Light and Coke Company. Gas Industry House, 2.30 p.m.

News in Brief

New Coal-Handling Plant is to be installed at the works of the Doncaster Gas Department at an estimated cost of £50,000.

The Articles of Association of Radiation, Ltd., were altered at an extraordinary meeting of the Company held in London on Oct. 19 under the Chairmanship of Mr. J. F. Davies.

Land Originally Intended for Educational Purposes is to be given up by Wallsend Corporation to the Newcastle-on-Tyne and Gateshead Gas Company, for proposed extensions to the Howdon Gas-Works.

The Grey (Discussion) Edition of Communication No. 324/142 of the Institution of Gas Engineers ("Some Recent Developments in the Production and Measurement of Convected Heat for Domestic Purposes," by A. R. Bennett) is now available from the Institution, price 2s. 6d. per copy (post free).

The Eastern Association of Gas Engineers and Managers will hold its Autumn Meeting at the Waldorf Hotel, London, at 2.15 p.m. on Nov. 12, when the main item on the agenda will be the Presidential Address of Mr. Frank Allen, Engineer and Manager of the Clacton-on-Sea Gas Department. The business meeting will be preceded by luncheon at 12.30 for 12.45 p.m.

The "Adams Beck," which is the first of five diesel colliers now being built for the Gas Light and Coke Company was launched at Burntisland on Oct. 14 by Mrs. Michael Milne-Watson, wife of the Governor of the Company. The vessel, built by Burntisland Shipbuilding Co., Ltd., will carry about 2,600 tons of coal, and is being specially constructed to deliver cargoes to gas-works above the Thames bridges. When in commission, the m.v. *Adams Beck* will be the first motor vessel to be added to the Company's present fleet of 19 steam colliers.

Stella Gill Coke Plant, Pelton Fell, Co. Durham, which was damaged through having to be cooled down as a result of a three-day strike last March, is still out of commission. The plant is to be repaired by the National Coal Board, but repairs will not be finished until next spring. Meanwhile, Durham City Gas Company, which normally obtains a supply of gas from Stella Gill, is making its own gas and obtaining other supplies from the Newcastle and Gateshead Gas Company. The company has asked consumers to economize until the plant is repaired.

Members of the Institution of Gas Engineers are invited to a meeting of the Chemical Engineering Group of the Society of Chemical Industry to be held on Nov. 9 at 5.30 p.m. in the Apartments of the Geological Society, Burlington House, Piccadilly, London, W.1, at which a paper will be given entitled "Heat Transfer," by Mr. A. D. Davidson. The Chairman of the Group, Mr. Julian M. Leonard, will preside. A few advance proofs of the paper will be available, and application for these should be made to the Hon. Secretary of the Society of Chemical Industry, 56, Victoria Street, London, S.W.1. No tickets are required for this meeting.

Darlington Town Council has accepted the tender of G. Waller & Son for the supply of a steam-driven gas exhauster for the Gas Department. The Council has received sanction to borrow £11,809 for the laying of gas mains.

On the Invitation of Mr. R. C. Taylor, Engineer and General Manager of the Torquay and Paignton Gas Company, a three-days' series of talks on the construction, regulation, and maintenance of Main cooking appliances was given to the Company's inspectors and fitting and maintenance staffs recently by Mr. A. Forshaw, Chief Chemist, R. and A. Main, Ltd.

Illustrated by a good selection of lantern slides, the Presidential Address of Mr. J. W. Curtis, M.B.E., Chief Engineer, West's Gas Improvement Company, Ltd., to the Manchester Association of Engineers, was extremely effective in showing to an audience of general engineers the extent of engineering equipment in gas-works. The address dealt with the mechanical handling of coal and coke.

Details of Courses in gas-fitting and the technology of gas manufacture and supply are contained in the newly-issued Regulations and Syllabuses for Examinations in Chemical, Metallurgical, and Allied Subjects of the City and Guilds of London Institute. Copies are available from the Department of Technology of the Institute, 31, Brechin Place, South Kensington, London, S.W.7 (price 1s. net; by post 1s. 3d.).

The Employees of Ascot Gas Water Heaters, Ltd., were recently given an opportunity of expressing gratitude for the generosity shown by the Dominions in connexion with the millions of gift parcels which have been voluntarily sent to this country. The fortunate recipients at the Ascot Works, Neasden, sent messages of cordial goodwill to the people of Western Australia. The Hon. W. H. Kitson, Agent-General for Western Australia, presented the gifts, and acknowledgments were made by Lord Limerick, Chairman of Ascot Gas Water Heaters, Ltd.

RE-SOLD GAS PRICES

Arising from current correspondence and references in the national Press to the prices charged by hotels, boarding houses, and others for gas, the following statement has been made by the General Manager of the British Gas Council:

"Under the existing law a gas undertaking cannot control the price at which a consumer re-sells gas supplied to him by the undertaking. The price is frequently fixed by the consumer to reimburse him for the cost of the installation and maintenance of the meter and appliances.

"Under the Gas Act, the Area Boards will have to fix and publish maximum prices at which gas supplied by them may be re-sold."

SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS

ANNUAL GENERAL MEETING

THE Annual General Meeting of the Southern Association of Gas Engineers and Managers was held at the Connaught Rooms, London, on Oct. 26, under the Presidency of Mr. L. P. Ingram, General Manager of the Taunton and District Gas Company. There was a large attendance of members, and many apologies for absence were received, among which Mr. J. M. Webber, Secretary, particularly mentioned those from Mr. E. Crowther, President of the Institution of Gas Engineers, Sir Guy Nott-Bower, Deputy Secretary of the Ministry of Fuel and Power, and Mr. J. S. Smith.

After the confirmation of the minutes and the acceptance of two resignations, the **Secretary** reported with deep regret the death of Mr. Henry Woodall who, he said, had been a member of the Association since 1901 and was elected an Honorary Member at the spring meeting this year. He also reported the death of Mr. P. E. Williams (Sidmouth), a member since 1903; Mr. P. G. G. Moon (Bournemouth), a member since 1906 and President in 1925; and Mr. F. N. Skinner (Martock), a member since 1919, who died on Oct. 22. The President intimated that instead of sending a wreath to the funeral of Mr. Woodall the Association had made a special contribution to the Benevolent Fund of the Institution of Gas Engineers. A silent vote of condolence was accorded.

The annual report and statement of accounts, already circulated to the members, were formally submitted and the main items in the accounts were explained in detail by the Secretary. On the proposition of the **President,** the report and accounts were adopted with thanks to Mr. C. F. Botley and Mr. J. H. Donaldson, the Auditors, for their services during the year.

The following new members were elected on the proposition of Mr. F. **Dawson,** seconded by Mr. **J. H. Dyde**: *Members*: H. J. Bond, General Manager and Secretary, Glastonbury and District Gas Company; W. H. White, Clerk of Works, Gas Light and Coke Company; C. E. Metcalfe, Resident Engineer, Deal and Walmer Gas Company; and J. H. Rich, Engineering Assistant, Portsmouth and Gosport Gas Company; *Associate*: J. O. Cooke, General Manager, London and Counties Coke Association.

Mr. **H. J. Escreet,** Immediate Past-President, stated that the Council had decided to recommend that Mr. Ingram, who had been the Association's representative on the Council of the Institution for the past year, should continue to represent them. He was the obvious man for the job and it was desirable that there should be continuity of representation on the Council.

Mr. **F. E. Cox** seconded and the recommendation was confirmed.

Presentation to Mr. Escreet

The **President** said there were three happy events in the short life of a President; first when he was elected as President and realized that he had the friendship and confidence of his colleagues; second when he had the privilege of conveying thanks and appreciation from his colleagues to his predecessor in office; and third when he had completed his year of office and heard his colleagues say "Well done." While he was experiencing the second of those pleasures, Mr. Escreet had reached the third, with the assurance that he had done a real job of work for his colleagues and that his services had met with their unqualified approval and inspired in them feelings of deep gratitude. Mr. Escreet was one of the older members, having been a member of the Association since 1927, and they had learnt to appreciate his quiet unassuming manner and the valuable contributions which he had made to the sum of their knowledge. He was a recognized expert at his job. A year ago in that almost apologetic manner which was typical of his retiring disposition he told them in his Presidential Address that he was the first distribution engineer to be President of the Association. Apology was much more rightly due from the Association to Mr. Escreet for the fact that it had taken them all those years to find out how well fitted he was for that position.

Few Presidents were given the honour of presenting during their year of office a paper to the Institution of Gas Engineers, and they as an Association could bask in the reflected glory which accrued to Mr. Escreet as the result of his excellent contribution to the annual meeting of the Institution last June. They were indebted to him not only for the dignified and efficient manner in which he had conducted their business, but for his services to the industry generally. They had given him the highest honour in their power and he had brought credit to the Association; so much so that its name stood higher than ever it did in the industry. The Institution had charged him with the duty of co-ordinating the discussions and recommendations of all the District Associations regarding their future status in a nationalized industry.

It was his duty on behalf of the Association to present him with a portable gramophone as a small memento of a very successful year of office, and to assure him of the members' sincere gratitude for his work on behalf of the Association and the industry.

Mr. **Escreet,** in acknowledgment, thanked the members for their support during the year and said the memento—greatly though he appreciated it—was hardly necessary in view of the nice things said about him. He was particularly grateful to Mr. Webber for all he had done as Secretary during that time. Mr. Webber was an exceptionally efficient Secretary. Those who had received the new list of members and had studied the lists of past Presidents and Secretaries might have noticed that while Presidents came and went, they could expect a Secretary to last seven years. They could therefore hope for three or four more years' service from Mr. Webber, though he observed that in an earlier period when they had a Secretary from Croydon he remained in office for 17 years.

A Notable Address

The **President** then delivered his Presidential Address, which is published on pp. 267-268 of this issue.

Mr. **J. Carr** (Bristol), in moving a vote of thanks to Mr. Ingram, said if he had interpreted the Presidential Address aright, its main message was a call to continued service despite the forthcoming changes in the set-up of the industry. The President was anxious that they should maintain the enterprise and endeavour which were the background of the strength of the industry. The modern home depended on their service, which must be continually improved; likewise their services in the commercial and industrial fields increased year by year, and not only continuity of supply but specific gravity, calorific value, and uniformity of pressure all played a vital part in the sale of large quantities of gas in the industrial and commercial spheres.

He thought they should all take warning that as soon as they started to operate under nationalization the public would be tempted to criticize their service and to question whether they would be able to continue their regular service as regards maintenance as in the past. One of the points made by the President was that they should see to it that in the transfer from private enterprise to State ownership the public should scarcely know that such a change had taken place. He was glad to notice that the President had referred to the educational side of the industry and the new education scheme, and had stressed the necessity of attracting the right type of student. At present many youths were doubtful as to whether it was worth while entering the industry in view of the approach of nationalization, and it was essential that the industry should be ready, as regards education, and in a position to assist new entrants in their studies. It was essential that they should spare a little time to interview new entrants in the industry. Some of them, particularly in the larger undertakings, were there quite a long time before they had the opportunity of seeing the chief officials. It was the duty of the officials to give them a welcome and a proper indication of their duties in the industry.

A Meteoric Career

Mr. **W. K. Tate** (Portsmouth), in seconding the vote of thanks, said Mr. Ingram's career in the gas industry had been, in the words of his Chairman, meteoric. Mr. Bennett had once told him that Mr. Ingram was a man who could charm blood out of a stone. Personally he had not had so close an acquaintance with him as some of the members, although he had done his best. While Mr. Ingram was at Bognor he (Mr. Tate) applied for and obtained his present position at Portsmouth in the hope of making closer contact with him, but no sooner had he arrived than Mr. Ingram went on to Taunton. The Presidential Address had reflected their feelings about the new state of affairs. They stood to-day on the threshold of a new era, and the President had seized the opportunity of taking stock of their position and stating just how they felt about the future.

The Presidential Address was a complete document in itself. Starting at the back one read of the methods by which the gas engineer was going to be trained in the future, and of the status which they hoped he would reach in the days to come. It was right that they should, especially at the present time, express confidence in their knowledge, usefulness, and technique, and their President had done that for them. He had laid down the lines on which they were going to build and those along which they had already travelled, and had given expression to feelings which were shared by everybody in the Association. He had no doubt in his own mind that in the future they would continue to serve the consumer as they had in the past, and he felt Mr. Ingram had rendered a great service in putting their unformulated feelings on that matter in such a lucid and qualified way.

The **President,** in reply, said there was a fourth pleasure in the life of a President, namely, in receiving thanks for one's Presidential

Address. It had been a pleasure to him to prepare it, mostly on the sands in Cornwall, and it was a great happiness to him to feel that it had met with their appreciation.

The Institution Appeal

Mr. **C. H. Chester,** Senior Vice-President of the Institution of Gas Engineers, appealed for support on behalf of the Institution Building Fund. All Institution members had received a circular from Dr. Hartley and the Past Presidents, and an appeal had been launched to undertakings and to members of the Society of British Gas Industries. The total sum aimed at was £100,000, made up as to roughly £60,000 from the industry itself by subscription or contribution at the rate of 5s. per mill. cu.ft. from gas undertakings, by kind permission of the Ministry of Fuel and Power, and as to a further £25,000 from the S.B.G.I. So far, the appeal to the industry had been good, but the Appeal Committee was disappointed in the response from the members. So far out of about 2,000 members not more than 300 had subscribed. They gave an undertaking to the Ministry of Fuel and Power when they obtained permission to launch the appeal to the industry that they would strongly engage the attention of their members to support the Institution from time to time. The Institution, allied as it was to the District Associations, must be a strong body and must have its own independent headquarters outside the nationalized structure.

It was up to the members themselves to support the appeal. He could not help feeling that some of the lack of response had been due to negligence or carelessness, but he anticipated that those who had not yet responded would shortly be receiving an "account rendered" from Dr. Braunholtz. They would like to be able to tell the Minister that the majority of the members had subscribed, and to that end he sought the support of the members of the Association.

The **President** warmly commended the appeal to the members, and suggested that contributions of as little as half a guinea, if given annually under a seven-year covenant, would make a tremendous difference to the total.

Before the business commenced, Mr. **W. H. Bennett,** Chairman of Associated Gas and Water Undertakings and of the Taunton and District Gas Company, extended a cordial invitation to the members to visit Taunton for their summer meeting next June. He anticipated that before that time the Taunton Company would have been vested in the South-Western Area Gas Board, but the Company had been authorized by the Ministry to meet the expenses incurred in connexion with the visit. Mr. Ingram had been Chairman of the Western District and the works had been visited by the members of that District. Although there would be little that was new for those members to see he hoped that members from the rest of the Southern Association's area would see a works which they claimed was up-to-date and unique in some ways. The date for the proposed visit was June 28, 1949.

The **President,** on behalf of the Association, thanked Mr. Bennett for the invitation, which he was sure they would all wish to accept.

PROMISE OF SUCCESS AND SATISFACTION

IN NEW GAS INDUSTRY SET-UP

MR. A. E. SYLVESTER, Chairman-designate of the Gas Council and President of the British Gas Council, was the principal speaker at the luncheon which preceded the Annual General Meeting of the Southern Association of Gas Engineers and Managers at the Connaught Rooms on Oct. 26.

Proposing the toast of the Association, Mr. Sylvester said he would have been glad to make use of the privilege to give some definite lead as to the shape the industry was likely to assume under nationalization, but the time was not yet and they must be patient a little longer. The Gas Council was not yet set up, and thus no policy could yet be in existence. He could, however, give a personal assurance that he believed the shape of the industry would be one likely to lead to success and to give satisfaction to those employed in it. Time that was being spent in the initial stages was not being wasted, but was being well spent; the foundation work in any structure should not be unduly hurried.

The Association had had a long and honourable life of service to the industry, having been founded in 1875, 12 years after the formation of the forerunner of the Institution of Gas Engineers. He did not regard nationalization as in any way bringing an end to their admirable activities; they were necessary for the industry and must continue.

They would have gathered from their reading of the Gas Act that there were to be 12 Area Gas Boards, each of which was to be responsible for carrying on the industry in its own area. The Boards were to be set up with complete autonomy except that in matters of national interest directives might be given by the Minister. His own reading of this was that for all practical purposes the Boards would be supreme in their own areas. The Gas Council would be a kind of federal body at which matters of common interest could be discussed, and he believed the Area Boards would derive great benefit from this idea and would be able to learn and profit from each other's experience. The Council, in addition, would have certain duties in connexion with finance, labour matters, and research, but he did not imagine that those matter would in any way detract from the full responsibility of the Area Boards. It should be remarked that the Council was to be composed of the Area Chairmen.

The Best Approach

"I regard this general set up as a very good one," continued Mr. Sylvester, "for I believe it can lead to the best possible form of organization in each Area, an organization which can be built from the ground upwards instead of from the top downwards. For many years this principle of organization has been among my strongest beliefs, for I hold it to be the best mental approach to any problem of organization. In other words, an organization should be built up by studying the actual job to be done and the shape of the organization derives from the job; not the other way round."

The industry from its very nature must largely be manned by engineers, but over many years there has been a growing readiness to realize the need for experts in non-engineering subjects. This had been a healthy sign of life and was likely to continue. Specialization was the order of the day, and the industry was so important a feature of our national life that it must attract to its service the best available talent in all branches of business. With the impetus to regional grouping, which must come, there must be in general a higher degree of specialization in the future. This was a consequence not of nationalization, but of grouping of units, a good deal of which was inevitable. It should never be forgotten that specialization was a characteristic of civilization itself, for a community which consisted of people not relying on each other but each providing everything for himself would be in a state of barbarism. At the same time specialization must never mean a lack of interest in what the other people in the team were doing; they must not work in watertight compartments, and the work of the Association was of increasing importance in that connexion.

"I have no hesitation in saying to you that the need for engineering and technical skill is greater than ever before, and that your Association, affiliated as it is with the Institution, can look back on an admirable past and look forward to an even more brilliant future. If standards of living are to be maintained, the loss of productivity of labour must be offset by greater technical and administrative skill. This is not politics—it is mathematics. . . . You will realize that I speak as an individual, for I have no other authority, but in that sense I can say to you in all sincerity that your Association and the Institution are more than ever necessary to the industry."

Misgivings Countered

The **President** (Mr. L. J. Ingram), replying to the toast, thanked Mr. Sylvester for what might be termed an address of inspiration, which should counter any misgivings and cancel any preconceived ideas they might hold of troubles awaiting the industry. They were indeed glad to receive Mr. Sylvester's assurances for the future. In regard to nationalization of other industries, the financial papers had been known to refer to the "rape of an industry"; in the case of gas a possibly better description had been offered by a prominent engineer sitting near, who had described the taking over of the gas industry as "seduction without salesmanship." As for the future of the Association, they knew they were an important and integral part of the industry, and all present looked forward to an era of extended interest and usefulness. He could assure Mr. Sylvester of the loyalty of the Southern Association and every one of its members.

Mr. **J. H. Dyde** (Uxbridge and Slough) proposed the toast of the visitors, among whom he mentioned Mr. W. H. Bennett, Chairman, and three Directors—Mr. J. Urquhart, Mr. A. E. Whitcher, and Mr. J. H. Donaldson—of Associated Gas and Water Undertakings, who had come to do honour to the President; Mr. Sylvester; Sir George Evetts; Dr. D. T. A. Townend; Mr. R. Kelf Cohen; Major Hyde; Mr. C. H. Chester; and representatives from many kindred associations.

Dr. **D. T. A. Townend,** President of the Institute of Fuel, responding to the toast, said the coming change in ownership of the gas industry in no way altered the problems and responsibilities of the professional men in the industry. There could be little doubt that the professional man could, in spite of political issues, see this country through, for he was the backbone of an industrial nation. He urged the Association to keep a close watch on the education of youth in its area. If we were to survive, education must not be entirely a matter of likes and dislikes, but a question of how youth could best serve the nation. If youth was properly informed there would be no lack of response.

THE NEEDS OF AN INTEGRATED GAS INDUSTRY*

By L. P. INGRAM, M.Sc., M.Inst.Gas E., A.R.I.C.,
Engineer and General Manager, Taunton and District Gas Company

I AM taking office at a milestone in the history of our industry —the Gas Act, 1948, has been placed upon the Statute Book—and, if the general intelligent guess regarding vesting date is correct, I may well be the last "private enterprise" President of this Association.

It might be profitable at this juncture to spend a few moments reviewing the past—not in self-commiseration for the days that are gone and the glories that have departed, but to gain inspiration, from a study of our history and traditions, to enable us to meet the changed conditions of the future and, as in the past, to regard the unknown as a challenge to further effort.

This Association was founded on July 15, 1875, "for the purpose of more frequent intercourse among gas engineers and managers connected with the Southern Counties, on all matters of gas engineering and manufacture, than is at present available." Of the 14 original members, Mr. A. H. Wood, of Hastings, was elected the first President, and at the first annual meeting in the following November delivered his Inaugural Address embodying the exact views the promoters had in forming the Association.

Presidents come and Presidents go—I am the 70th in the line—but Secretaries, fortunately for the Association, while not going on for ever, have given their untiring and efficient services for much longer periods. There have been only 10—Messrs. J. L. Chapman, Harrow; J. W. Helps, Croydon; A. F. Browne, South Metropolitan; W. E. Price, Hampton Wick; H. C. Head, Winchester; W. H. Bennett, Redhill; H. C. Smith, Tottenham; J. H. Donaldson, Sevenoaks; W. A. Howie, Gravesend and Maidstone; and our present indefatigable Secretary. Mr. J. M. Webber. To these gentlemen in particular we should pay tribute for the sound foundations on which the Association has been built, and for its continued progress from strength to strength.

From the efforts of those far-seeing engineers of 73 years ago, and under the guidance of a distinguished succession of Presidents and Secretaries, has resulted the Southern Association of Gas Engineers and Managers as we know it to-day with its 361 members.

Jubilee Messages

May I quote a few extracts from messages received by the Association on the occasion of its Jubilee in 1925:

Sir David Milne-Watson, President of the National Gas Council: "Few industries are more dependent on the scientific attainments of engineers and managers than the gas industry, and nothing so tends to broaden the mind and increase the experience of such men as the facilities for regular conference provided by your Association."

Mr. C. F. Botley, President of the Institution of Gas Engineers: "Naturally, it is a time of retrospection, and what memories can be recalled of honoured names in the gas industry and of many friends who have 'passed on,' having, in their day, contributed to the success and usefulness of the Association. As a District Association affiliated to the Institution, the Southern, with its record of service to its individual members, and to the whole industry, quite properly claims a high place. Surely, such a record must serve as a great inspiration to present and future members to maintain, and so far as may be enhance, the reputation of the Southern Association."

Dr. Charles Carpenter: "To have existed for 50 years is, in itself, a complete justification of the hopes and expectations of its founders. If, during that time, the developments in the manufacture and distribution of gas, and a consideration of their concomitant problems, have shown the need for such an Association—and this they certainly have—then the new era upon which it, with the gas industry, is now entering must more than ever test its vigour and vitality in coping with the increasing number of problems—technical, commercial, administrative, and economic—with which the industry is faced."

Mr. Henry Woodall: "Old traditions are an encouragement and an incentive. The Association grows steadily in numbers and quality, so we can look forward to the continued usefulness, the promotion of good fellowship, and the generous exchange of ideas and experience which has always been such a notable feature with us."

Sir Arthur Duckham: "Gas is more of a live issue and a national necessity than ever. The ever-increasing keenness of all concerned points the way to continued success."

These messages are as apt to-day as when they were written, and I feel sure that they will evoke the same spirit of enterprise and service as they did 23 years ago. To-day we have a greater call to service than ever before. If politically we are in agreement with nationalization, we cannot "let the side down," but must use our best endeavours to make the "new order" a success. If we are opposed to public ownership, we must remember that private enterprise still remains in the great majority of industry and commerce generally, that millions of homes depend on us, and that we are an essential service to the public. And if, as they should, our professional ethics transcend all questions of party politics, the only yardstick by which we can measure ourselves, our Association, and our industry, is the degree of our success in serving our customers and our country.

A Common Loyalty

If you will forgive the personal note, I have served with large and small company undertakings, with municipal gas departments, and latterly under holding company control. I have found that all forms of enterprise have their strong points—and their weaknesses—but all have one thing in common in the loyalty of the professional gas engineers and their staffs to the industry and to the individual undertakings they are proud to serve.

I am sure that I am expressing the opinion of all the executives in the industry when I pledge their full support to the new order. All we ask both for our industry and for ourselves individually is a fair field and no favour—and may the best man win.

Somehow we have to find a means of reconciling enterprise and control, and in this connexion I would refer to the necessity for the preservation of that individuality which has in such large measure helped to build up our industry. There has been much talk in the last two or three years of the need for incentives in industry, whether under public or private ownership. In my opinion the greatest incentive of all, and the one most capable of general application, is the infusing into a man of a real sense of pride in his job. One of the main functions of this Association, and of the other district associations, has been the fostering of this sense of pride, by giving opportunities for meeting one's brother engineers, and for facilitating discussion and mutual help. Particularly has this applied to the provincial meetings, with their almost standard agenda of "coal, coke, tar, purifying materials, and any other business," and many an engineer has returned therefrom to his small-town job feeling a better man for a timely pat on the back from his colleagues or a helping hand from a neighbour.

In the multitude of the undertakings, large and small, comprising the gas industry, has lain its weakness—and its strength. Integration may remove some of its obvious weaknesses, but in the process there is a danger that, by over regimentation, individual pride may be stifled. Red tape is probably the most effective contra-incentive. Organized effort is the watchword of the day, but it must not be allowed to destroy originality, resource, and ambition.

It is undesirable, I suggest, to speculate on the new set-up of the nationalized gas industry. As much depends on the spirit in which the new organization is regarded by us all as on its actual personnel. We are fortunate in having two acknowledged leaders in the persons of Mr. A. E. Sylvester and Colonel H. C. Smith as Chairman and Vice-Chairman of the newly constituted Gas Council, and we may be sure that the advice they will give to the Minister of Fuel and Power will be in the best interests of the industry and their professional colleagues.

Gas Engineers' National Guild

With the vesting of the industry under public ownership we are left with one employer only, and this makes essential the organization of the senior technical and administrative staff in a fully representative association which can discuss at the highest level the conditions of service under the new regime. We have a potential association of this kind in the Gas Engineers' National Guild, and I would strongly urge those of our members who have not yet joined the Guild to do so forthwith. The Guild is in its infancy—a most impressionable age—and our future professional status depends very largely on our having the right men as members of the Guild, particularly on its Managing Council.

In the past there have been several abortive attempts to form a national staff association. They failed for two main reasons. Firstly, support had not been forthcoming from the more highly placed chief officials for their colleagues in less fortunate circumstances, and as a result the embryo associations were largely composed of dissatisfied and disgruntled members. Secondly, and largely as a result of the former, too much emphasis was placed at the outset on salary scales, and too little on the setting of a high professional standard with, as a corollary, conditions of service commensurate with the importance

* Presidential Address to the Southern Association of Gas Engineers and Managers, Oct. 26.

of the industry. Our organization must be a professional Guild, and not a glorified trade union merely to regulate salaries.

If I may mix my metaphors for a moment, I know that "money talks," but with taxation at its present level, it uses a half dead language. Far be it from me to decry a study of these classics, doubtless of sterling worth. I would plead also for the practice of the arts and sciences of mutual respect and trust, and fairness. These are counted in a hard currency and their exchange value is high.

A considerable number of members of the Guild now are, I know, somewhat dissatisfied with the apparently slow progress of negotiations with the Federation of Gas Employers, the Association of Municipal Corporations, and with the Ministry of Fuel and Power. With the two former the Guild is now no longer concerned, but it has achieved a full measure of success in obtaining an assurance from the Ministry that the Guild will be recognized as the national body with which future negotiations regarding conditions of service, pensions, compensation, &c., of senior executives will be carried out under a nationalized industry.

Those of you who have read the 1947 annual report of the National Coal Board will realize the importance of such recognition. Paragraph 106 of the report reads: "At first sight it might have seemed that the administrative, professional, and technical staffs of the industry would be little affected by nationalization. . . . In fact, nationalization inevitably brought changes to the working lives of all who earned their living in the industry, including those on the management side." The National Coal Board has realized that it must be "a responsible employer and a just employer," and has faced "the unspectacular but administratively complex task" of dealing with the staff problems in the coal industry. The problems of the nationalized gas industry will be no less complex, and it is safe to assume that they will be tackled by the new Gas Council and Area Boards, in consultation with the Guild and other representative bodies with equal vigour, and, we trust, with fairness to both sides.

Education

The past year has seen a development which should raise greatly the status of the gas engineer of the future. I refer to the collaboration in educational matters between the Institution of Gas Engineers and other kindred institutions, particularly the Institution of Civil Engineers, which has resulted in the formulation of our new Education Scheme. The Associate Membership Examination of the Institution of Gas Engineers, leading to Corporate Membership of the Institution, will be of a standard comparable with the corresponding examinations of the Institutions of Civil and Electrical Engineers. The Common Preliminary Examination, the Joint Section "A" Examination, and the Joint Section "B" Group VIII Examinations will not only ensure a high standard for future entrants into the technical side of the gas industry, but subjects passed in these examinations will be acceptable to other engineering institutions, thereby enabling gas engineers thus qualified to obtain other professional qualifications with the minimum of further study.

I feel also that this collaboration will result in the attraction to the gas industry of a better type of student. Many young men feel a desire in a general way to take up a career in engineering without any very marked preference for a particular branch. Under our new Education Regulations a course of study can be pursued covering the Common Preliminary and the Joint Section "A" Examinations, leaving the final decision regarding the specialized subjects till a later date when the student has found his individual preference.

In addition, the exemption on a "subject-for-subject" basis, offered to engineers who have passed the Associate Membership Examinations of the Institutions of Civil, Electrical, or Mechanical Engineers, should lead some of these to obtain further qualifications as Chartered Gas Engineers also.

In an integrated industry the need for the specialist will be greater than ever before. The accent these days is on training, and I feel that our new Education Scheme should bring to the industry the right type of students to be the gas engineers of the future.

The main theme of this address, written at a time of flux in our industry, has dealt with the preservation and further enhancement of a high professional status for the technicians and administrators who will—with the aid of, or in spite of, the politicians, and whoever the owners may be—have to run our great industry, and shape its destiny.

In the past, apart from the staffs of the metropolitan and great provincial undertakings, a large numerical majority of the members of our Association have been "Jacks-of-all-Trades." We have been engineers, administrators, chemists, accountants, salesmen; and thereby perhaps we have laid ourselves open to the unjust accusation that we are "masters of none." The "gas-man" has been almost a hardy perennial music hall joke, with no pantomime complete without him. We may have been the Cinderella of the Fuel Industries—but perhaps the Fairy Godmother has come disguised as Mr. Kelf-Cohen, with Mr. Gaitskell as Prince Charming. I am optimistic enough to believe that the political pantomime in which we have been cast in the major role for the past year will have a happy ending. The gas industry will continue to play its part with ever increasing success in the task that lies ahead of rebuilding England.

In 1856 Ralph Waldo Emerson wrote:

"I see England not dispirited, not weak, but well remembering that she has seen dark days before; indeed with a kind of instinct that she sees a little better on a cloudy day, and that in storm of battle and calamity she has a secret vigour and a pulse like cannon. I see her in old age not decrepit but young and still daring to believe in her power of endurance and expansion, with strength still equal to the time, still wise to entertain and swift to execute the policy which the heart and mind of mankind require at the present time."

This is true of the England of to-day, and if you would substitute "The Gas Industry" for "England," the quotation aptly describes in words far better than I can command the traditions and aspirations of our great industry also.

In conclusion, may I again thank you for electing me as your President, and also express publicly my gratitude to the Chairman and Directors of the Taunton and District Gas Company for permitting me to accept this office. Mr. W. H. Bennett has assured me personally of his full support and of that of his colleagues during my year of office, and I feel sure you will appreciate this, as I do, as further evidence of their firm and lasting interest in our Association.

RECONSTRUCTION AT ROCHDALE

The output of Rochdale Gas Department has now passed the 5 mill. cu.ft. per day mark, and to meet future requirements an extensive scheme of reconstruction costing more then £1,250,000 has been sanctioned by the Ministry of Fuel and Power.

The scheme had its beginning in the years before the war, but it was not until 1945 that the first part of it, the provision of new carconizing plant and a gasholder at an estimated cost of £400,000 came before the Council and was agreed to. Work was started in 1946, but since then a big jump in demand, coupled with the fact that the Department was struggling along with a proportion of worn-out plant, made it obvious that more would have to be done. Last February an additional scheme involving a further £911,000 was prepared by the Engineer and Manager, Mr. C. H. Bamber, and was approved by the Council and the Ministry of Fuel and Power. This will provide for another retort house, the reconstruction of the house built in 1936, new purification plant, coke screening plant and bunkers of 600 tons capacity, reconstruction of the waste-heat boiler house, and improvements at the railway sidings. There are also to be extensive alterations to the stores and workshops. When the scheme is finished in six or seven years, Rochdale will be assured of gas manufacture at a maximum rate of 8 mill. cu.ft. a day and will be in a position to supply not only Rochdale's wants but those of the surrounding district as well.

Work at present in progress is on the new retort house and gasholder sanctioned in 1945. To show what is being done the Mayor (Councillor F. W. Greenwood, J.P.) invited the Directors and executive staff of one of the largest industrial consumers in the Rochdale district, Tweedales and Smalley (1920), Ltd., textile machinists, to a tour of inspection. The tour revealed that half the work on the first stage of the scheme has been done, thus providing a gas-making unit of ¼ mill. cu.ft. a day, while one new waste-heat boiler has been installed. The second half of the work is expected to be completed in about 18 months and will then give another gas-making unit of 1¼ mill. cu.ft. a day. Two more boilers will then have been added to the waste-heat boiler house. The new gasholder will be spiral guided, 120 ft. high. The foundations are now complete and the first tier plates fixed on the tank, which has a diameter of 150 ft. and a capacity of 1½ mill. cu.ft.

At the luncheon which followed the Mayor stressed the importance of industrialists keeping in close contact with Corporation Departments, especially trading undertakings like gas. By so doing they would all reach a better understanding of the part they had to play in the scheme of things. He claimed that Rochdale had been alive to its responsibilities in seeing that when the ownership of the gas undertaking passed from the control of the local authority the manufacture and distribution of gas should be continued from the Rochdale centre, and he stressed the value this would be to Rochdale people generally.

PREVENTING CORROSION

Prevention of Iron and Steel Corrosion, by C. Dinsdale, M.Sc., F.I.M., Senior Chemist (Metals) of the East and North-East Regions of the British Railway Executive (Illiffe & Sons, Ltd., Dorset House, Stamford Street, London, S.E.1, 5s. net) is a 70-page attempt to compile, as far as is possible, a complete index of methods of preventing the corrosion of iron and steel, and the standard specifications connected with them. In preparing the book the author has had the co-operation of such bodies as the Ministry of Aircraft Production, Armament Research Department (Woolwich), British Standards Institution, B.I.S.R.A. Corrosion Laboratory, Research Association of British Paint, Colour and Varnish Manufacturers, British Cast Iron Research Station, D.S.I.R. Chemical Research Laboratory, and others. It is in three parts, the first dealing with methods of preventing corrosion, the second with cleaning metal parts, and the third, codes of practice. Two appendices deal with authorities issuing specifications, and specifications for paints and paint components.

COKE OVENS UNDER NATIONALIZATION*

By G. M. NAVE, M.Sc., F.R.I.C., M.Inst.Gas E.

WE are relatively speaking a small body, but we enjoy almost 100% membership of the coke oven managers in the country as well as many from other lands, and as it is the only Coke Oven Managers' Association in the world I feel very proud indeed to occupy this chair. The Association also represents many technical men besides the coke oven managers, and as the years have progressed since its founders realized during the first world war that the industry as it was then needed something in the form of an Association to promote the interchange of information and ideas the expansion of the Association has gone on steadily embracing more and more of the technical personnel engaged in the various branches either of or relating to the carbonization of coal.

The founders of the Association were for the most part men who had learnt the art of carbonizing coal in the hard school of experience, and as the high temperature modern ovens were then being visualized they used the platform afforded by the Association as the means of interchange of technical knowledge, text-books that were up-to-date even then being somewhat of a rarity. To-day the position of the technical man is firmly established in the industry and the proportion of men highly qualified in the various sciences is increasing. The Council of the Association has been conscious of this fact for some time, and it is gratifying to note that unanimity of opinion has reached the stage when it feels justified in recommending to the members certain changes in the rules which will in effect drastically modify the constitution and widen its scope.

I am in entire agreement with the proposed changes, and while advocating the widening of the rules to admit many qualified men who are not actually engaged in the active management of coke ovens, and agreeing with the proposals to equalize the voting power of the Members and the Associate Members, I would counsel the younger members to use their power with caution and to realize that what has taken years to build can be destroyed very easily by the unthinking placing of a cross on a voting paper.

Democracy is the keynote of to-day's outlook, but it must be true democracy which enhances the value of equality of power. The freedom which it gives must not be used to break down traditions and institutions which have their roots so firmly embedded in our way of living, and finding that it is not until they have been uprooted that it is realized how deep are the roots and how painful the extraction process, and, moreover, the painful realization that having once disturbed the roots they cannot be replaced exactly as before.

A Period of Upheaval

Our industry has just gone through a period of upheaval never before experienced, and it is indicative of the character of coke men that, whatever their private opinion and whether or not they have agreed with the enforced changes that have taken place, they have continued the tradition that the "ovens come first" and have kept them working steadily throughout all the transformations of ownership of plant and services.

During the first year of working under nationalized ownership many of our members were perplexed and uncertain as to how they would be affected, and appealed to the Association for guidance and action. Your representatives on Council gave unstintingly of their time during that year, and many representations were made on your behalf to the appropriate authorities. The main issue was that of ensuring that the coke oven personnel would be recognized under the new conditions of administration as being capable of running the industry, and it is gratifying to note that coke oven managers were considered when the appointments to the various Regions were made.

It has been suggested that there should be a separate administration for the coke ovens apart from the mines, and what has been achieved in this way is a step in the right direction. It will depend on the efforts of all concerned and the support that is afforded them by coke oven managers to show and prove that the industry should and can stand on its own feet.

The first report on the working of the National Coal Board recently published shows the carbonization side of their activities as a most profitable acquisition, a fact which does not surprise the coke oven personnel, but which is nevertheless a satisfaction to them, although it is hoped that profits will soon begin to accrue from the Board's other activities.

To those members who have persistently called on the Association for guidance and action in respect of matters relating to Trade Unions, Guilds, &c., the decision of Council is that the Association is a technical body existing solely to promote and advance the interests of the coking and by-product industry, and could not act for its members on questions of employment or wages. If members wish to join any of the various Unions, Guilds or Associations formed with that object they are perfectly free to do so if they think it will be to their advantage, but it is to be hoped that they will appreciate the worth of the Association in the technical world, and by continuing to support the Association realize that it has done much to promote their interests in all directions, and that Council has had the welfare of its members and associate members very much at heart during the unsettled times which we trust are becoming more stable.

While the Association cannot by its constitution act for members on personal matters such as salaries, employment, &c., the Council has already intimated that the members of the Advisory Committee have indicated their willingness to put their experience and advice at the disposal of any member or associate member who feels he cannot get satisfaction in the normal way, and, if the case was justifiable and of importance to the industry or the other members as a whole, it would use its influence to see that representations were made to the appropriate Departments or bodies with a view to seeing justice done and anomalies eradicated.

The troublesome times through which we have just passed have left their mark on the Association in a number of ways and not the least has been the drain on our financial resources due to the rising prices of practically everything necessary to keep the Association running smoothly and efficiently, and the expenses associated with the necessarily increased activity of the Council working on your behalf and in your interests. Our thanks are due in no small measure to our friends associated with the industry who have by their generosity helped the Association around an awkward corner, but the real effort has still to be made by the members and associate members themselves who must realize that if the Association is worth having it must have the wholehearted active support of everyone who accepts membership.

Centralized Planning

We can by united efforts do much good work, and as we are faced with a new era in the history of carbonization in that, whereas advancements and enterprise in the past have been taken only after the effect of possible reaction on the limited resources of a private concern had been carefully considered, the national ownership of more than half the coke oven plants in the country means that centralized planning, if carried out wisely, should result in greater advancement at a rate unknown before.

It is realized, of course, that in the next few years the main need will be to replace plants worn out during the war years and to keep up the output of coke without experimenting, and the tendency may well be for some time to take plans "off the shelf" in order to speed up the reconstruction. But once the industry has settled down to a steady replacement rate there will exist unique opportunities of co-operative planning and testing, which should result in technical improvements.

The aim of the industry is to carbonize coal in the most efficient manner, both from the operational standpoint and also on grounds of thermal efficiency, and it is interesting to note how the change in the value of labour as compared with raw materials has affected the economics of coke oven working. The tendency in the 1920's and 30's was to endeavour to reduce the charge for labour by increased mechanization, and while the labour shortage is such that attention must still be paid to improvements in this direction, the high cost of coal has placed the value of the B.Th.U. on a much higher level as compared to the cost of labour. If we are to reduce the cost of carbonization greater savings will be effected by fuel saving in all its aspects. The more thermally efficient ovens will have pride of place in the rebuilding programmes if the upward trend of coal prices continues.

Coal Quality

The lot of the coke producer has steadily worsened during the last few years and not the least of his troubles has been caused by the regrettable fall in quality of the coal. Coals are being coked to-day with ash contents unheard of in pre-war days; and if it is a fact that modern methods of coal winning must of necessity include a larger proportion of dross in the out-turn, then a big increase in the number of coal cleaning plants can be foreseen, as sooner or later the public and the bulk consumer will revolt at the iniquitous amounts of unusable material sold to them at coal prices.

*Presidential Address to the Coke Oven Managers' Association, Oct. 29, 1948.

Attempts are being made to amend price structures to take care of the now alarmingly wide range of qualities, but while these may or may not be welcome, depending on whether the increases or decreases in price are carried right through from raw materials to finished products, it is not the real or economical solution to the problem, which is to prevent the waste of effort in winning, raising, transporting, processing, and then finally disposing of useless material from which we have gained nothing. The quest for better efficiencies and performances has ever been attended by intensive research and endeavour to purify and improve the quality of the raw materials used in the carbonization process, and the inclusion of so much unwanted material in the raw material on which eventually the efficiency of our great national industries is based is indefensible and cannot even by the most abstruse and misguided reasoning be argued as in the nation's interests.

The past year has seen a great step forward towards our aim of further education for coke oven personnel. The Coke Oven Managers' Association has for the past 29 years encouraged the efforts of its members, who, through the City and Guilds of London Institute, have given freely of their time and experience to keep alive the only series of lectures outside university courses dealing with carbonization of coal in coke ovens.

The Institution of Gas Engineers has done great work in the educational field, but it has been, as was natural, more concerned with gas-works practice; and although the coal carbonized in coke ovens is approximately equal to that carbonized in gas retorts, it has always been difficult for students engaged in the industry to get adequate tuition, chiefly owing to the geographical situation of the coke oven plants.

Plant Owners' Interest

What has been done by examiners and teachers must surely be appreciated by our younger members and they will be, I trust, more than pleased at the interest shown by plant owners of recent years. The Coke and By-Product Plant Owners' Association, which became the British Coking Industries Association, endeavoured just prior to the nationalization of the mines to formulate a scheme for the furtherance of the education of coke oven personnel and intimated that they were prepared to back a suitable scheme. When nationalization became an actuality, involving as it did such a large number of coke oven plants, the project was temporarily shelved, but the National Coal Board has taken up the matter vigorously, and, as one of the Committee who have had dealings with their representatives on the subject, I can say how pleased we have been with the active and practical way in which they have tackled the problem. There was from the outset a willingness to co-operate and to recognize the Association as being the body most qualified to advise and initiate schemes on educational matters.

The British Coking Industries Association which, while still representing the industry in many ways, have renewed their interest and, representing as they do the plants not yet nationalized, have arranged the necessary contacts with the steel industry, which owns nearly all the remaining plants. It is expected that they will share and take part in the schemes which will be common to coke oven personnel whether employed by the National Coal Board or the, as yet, private owners.

The schemes so far put forward provide for free scholarships to universities and provision of lecture courses for those who do not attain such a high standard, and the Association's suggestions regarding the practical training have been accepted.

The industry can look forward in the future to a source of raw material in the form of young men trained in the fundamentals of chemical engineering, which should fill the market for future assistant managers, managers, and technical staff.

The step taken in 1941, when it was decided to make the possession of a qualification necessary before being admitted as an associate member, has borne fruit, and we can look forward to the day when membership of our Association will of itself constitute a qualification.

Talks have already taken place with the Institution of Gas Engineers with the object of close collaboration between the Association and the Institution, and although the question of preserving our individuality has presented a difficult problem, there has been considerable agreement regarding educational matters, and further extended opportunities for co-operation in this direction can be visualized which may well lead to close relationship between the two bodies.

Although there is every prospect for a much brighter future for personnel, the immediate outlook for the industry is not so good, and for some years to come staffs will be faced with a lot of hard work trying to keep up outputs with plant and equipment which have suffered during the war years, and which cannot as yet be replaced.

We have had to recommence exporting coking coals to other countries in order to pay for necessary foodstuffs, but it will surely be of more benefit to this country if the export of raw materials is kept down to a minimum and a processed or finished article exported instead. By exporting coke we keep the disposal of the by-products in our own hands as well as appreciate the value of the coal.

Unfortunately at the moment there is barely sufficient carbonizing capacity to meet the requirements of our industries, and until the rebuilding programme is well under way we will not be able to take advantage of exporting coke and coke nuts. The number of ovens that are in need of rebuilding is mounting up, particularly so as the onset of nationalization caused the colliery owners owning coke ovens to withhold the placing of orders until their position was clarified. Since the vesting date the new administration has not only been unable to make up for the lost time, but has not seen its way clear to place the necessary orders to ensure even a steady replacement rate, much less make up any of the ground lost during the war years. The silica brick and shape industry suffered during the war years by reason of the short sighted policy of not recognizing early enough, in spite of representations from executives engaged in the industry, that the youths who were then in training were the potential brick producers of the post-war years, and it was not until near the end of the war that exemption from military service was granted to youths. The number concerned was so ridiculously small that they could have had no effect whatever on the course of the war, but as trained moulders they could have influenced very considerably the economics of the immediate post-war years.

The result is, as was foreseen, that the refractories industries are now seriously handicapped by reason of the shortage of skilled moulders. The nature of the work does not make it attractive to the younger generation, and European voluntary workers are being called in to help; but the shortage of refractories will undoubtedly continue for some years to be a tighter bottleneck than anything else to the country's expansion in the heavy industries. During the war industry was kept going by the carbonizing plants carrying on with very little repair or provision for the days when deferred repairs could no longer be deferred—which time is now at hand. Refractory brick plants cannot be built overnight, and although projects are in hand and mechanization is being extended, there will be a two to five year period of acute shortage while the industry is being geared up to meet the demands of the coke oven and gas industries.

Machine moulding may be one of the answers to the production problem, but its success will depend to a large extent upon the co-operation between the brick maker and oven designer, and even so it must be remembered that when machines are used on work of this nature the rate of wear and tear is very high, and in practice the moulder has to be replaced by a craftsman who has to be highly skilled because of the rigid and close limits to which the machines have to work. Reduction in brick costs cannot be expected, and with the rising cost of labour in addition to more expensive methods of production the cost of the silica shape may well be greater in proportion to the silica brick than it is to-day.

One of the results of collaboration between operators and construction firms has been the realization that except in special cases the oven dimensions can be more or less standardized, and ovens are now generally built 18 in. wide and the height limited to between 12 ft. 6 in. and 14 ft. 6 in., while the length is generally of the order of 40 to 44 ft., depending on site conditions. This size of oven, holding about 17 tons of coal, is proving to be the most economic unit as regards life and working conditions.

Brick shapes are being simplified and the tendency prevalent some years ago for oven designers to complicate the brick shapes has been reversed. Simpler and more standard shapes will allow of more mechanization, and, as ovens are often rebuilt not because of failure of the bricks themselves but because of other causes such as obsolescence, wall end trouble, &c., we might well see the day in the not too far distant future when the brickmaker will determine the size and shape of the majority of the bricks that go to make up a coke oven.

There will, of course, always be the special shapes peculiar to a particular heating system, but for the most part the majority of shapes could be far more standard than they are to-day. This idea is not new, as it had already taken root on the Continent and in America before the war. As a result, progress there has been made with machine moulding to a greater extent than in this country, where, as regards silica shapes, it is still in its infancy and experiencing teething troubles.

Coke Ovens at Gas-Works

Nationalization of the gas industry is now an accomplished fact and although there has been during the past years closer contact between the coking industry and the gas industry than ever before due to the increasing quantities of coke oven gas being taken by gas undertakings, there should be in the future much closer collaboration between the two industries, especially as regards the working up and the selling of by-products. While there might still be a case for the survival of the small town gas-works, coke ovens are becoming recognized as the most economical way of producing gas in bulk, and the London gas companies are showing a lead to the gas industry by putting down coke ovens in place of gas retorts as base-load gas producing units. Other larger gas-works might well copy their example; and with the growth of trunk main systems more and more gas will be taken from coke ovens for distribution by the gas industry to the larger industrial areas.

The siting of coke ovens other than those which form an integral part of a steelworks or other large undertaking has always been the subject of much controversy. In the past the general tendency was to put the coke ovens near to the colliery producing the coking coal and merely processing coal which could not otherwise be sold. The increase in machine mining and the tendency to raise coal containing more and more dross are making the installation of cleaning plants

essential; and as these can conveniently be placed at the pithead in order to save transportion of ash, and as coke oven plants are now laid down in units which can deal with the outputs of more than one colliery, the coke ovens should be sited at a central point to which cleaned coal could be conveyed. This will not necessarily be adjacent to large gas consuming towns; but by trunk mains linking the towns and the coke ovens, the gas grids which have been so long discussed, might well be established on each of the larger coalfields with connecting trunks where necessary.

The amount of coke oven gas used in steel works for steel melting has steadily increased, and the early troubles experienced due to foaming of the slag have been overcome by the admixture to the coke oven gas of liquid fuel such as tar mixtures.

The steel industry is breaking all production records, but, if the output is to be kept up, the demands on the coke oven plants will be heavier, as they have repairs to attend to while keeping up the flow of gas. The percentage of scrap used in the furnace charges will eventually decrease as the available war scrap is used up, and this will mean that larger quantities of pig iron or hot metal will have to be used. This in turn means more coke; and as there is already a shortage of blastfurnace coke the capacity of the coke ovens to supply blast furnaces and steelworks with coke and gas might well become the factor which will decide the steel output for some years.

Time Lag in Oven Building

Coke oven plants are now taking as long as three years to build instead of 12 to 18 months, and although not all of this extended building time is due to silica supplies, the output of the brickmaking plants is earmarked by orders already placed until 1952. Castings and electrical gear are also only obtainable at long delivery dates, and it does not appear likely that the situation will improve rapidly as the confused and uncertain state of the heavy industries regarding policy and Governmental intervention is hindering the natural enterprise of business men, whose function is to anticipate the needs of industry and the country, and to meet all demands made upon the various commodities.

Research has been intensified of recent years and much good work has been done by the various associations and institutions, but it is disheartening to have to wait two or three, or perhaps more, years before a place can be found in a construction programme to prove in practice ideas and results which have shown promise under experimental conditions.

The capital cost of plant has increased to nearly three times what it was pre-war, and as labour and operational costs have kept pace in the upward trend it is difficult to see how many projects will be able to carry on and meet their overhead charges, much less make profits. This fact is causing each scheme to be subjected to the closest scrutiny and paring, which generally means that schemes which at one time would have been launched with confidence are now referred back time and again for further consideration, modification, and cutting-down, resulting in the disheartening of technical staffs, whose job it is to go into the details.

The feeling of " what's the use of it all " must not be allowed to become dominant, and a valuable contribution to the nation's recovery would be a revival of the feeling among technical and project staffs that what they were doing was worthwhile and would really get somewhere, and would not be stifled by a web of red tape, regulations, controls, licences, and uncertainty of finality.

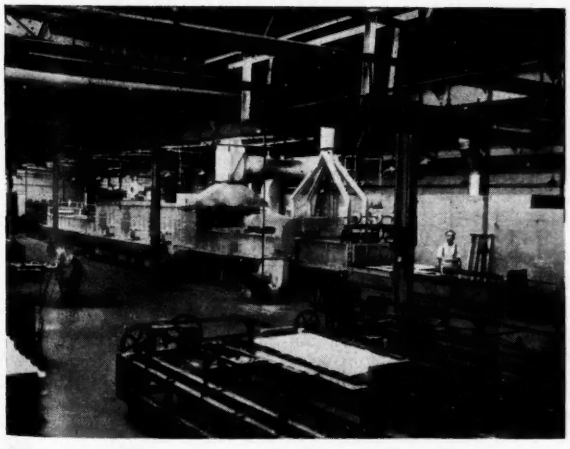
During the war there were many advances in technique and production of new products, as, for example, the strides made in the field of plastics, many of which were derived directly from coal products. There is no reason why the same initiative and endeavour should not continue, for the reservoir of raw materials opened up by recovering the by-products from coal has as yet not been fully explored. Wise direction and planning, coupled with the chance that nationalization of the greater portion of the carbonization plant has given to the unification of effort, may well result in the growth of industries comparable to the plastics industry, and in the production of exportable goods, with credit to this country of the enhanced value of processed coal.

While the immediate future of the coke oven industry is likely to be one of continuous battle against deteriorating plant, and will undoubtedly entail much hard work and disordered working, the industry will assuredly meet all its difficulties as in the past and keep up the supply of coke, gas, and by-products, if it is humanly possible.

When the renewals contemplated in the next few years are completed and the industry once more settles down to a steady rhythm, it will present many opportunities for careers to the young chemical engineers, who are now to get many more chances to qualify than ever before.

INSTITUTE OF VITREOUS ENAMELLERS

During the International Congress of the Institute of Vitreous Enamellers held in London recently, delegates to the number of nearly 150 visited the Gothic Works of R. and A. Main, Ltd., at Edmonton. Headed by their President, Mr. R. J. Rogers; the President-Elect, Dr. H. W. Webb; and Mr. C. P. Stone, Chairman of the Council, they were received by Mr. C. Marley, Director of R. and A. Main, Ltd., and General Manager of the Edmonton Works.



Part of the enamelling department at the Gothic Works, Edmonton, showing the recently-installed continuous enamelling muffle.

The visitors, in small groups, were shown the various processes, and in the enamelling departments, in which they were, of course, particularly interested, they saw one of the largest and most modern plants in the country. The equipment consists of muffle furnaces, heated by either town gas or oil, in which the final process of fusing the enamel on the metal—cast iron or sheet steel—takes place. Previous to this, the metal, according to its nature, is prepared by sand-blasting or by pickling. The application of the enamel in liquid form is done either by dipping or spraying, after which the parts are dried by passing through ovens on a conveyor belt or chains.

After drying, the enamel is either fused to the iron in a " box " type muffle furnace such as already mentioned, or, if on pressed sheet, in one of the new continuous muffle furnaces, through which the ware passes, supported on perrets which, in turn, rest on a conveyor. This form of furnace has automatic control by what is known as the " magic eye." This ensures, as each perret leaves the end of the conveyor after its load has been removed, that it is automatically taken to a lover level and placed on the returning conveyor, below the furnace, back to the charging end, where a similar " magic eye " causes it to be returned to the upper side of the conveyor, at furnace level, where it is again loaded with ware.

In addition to the enamelling department, the visitors also inspected the original floor-moulding foundry with its mechanized core shop, and the new mechanized foundry, in which, at its name implies, the utmost use is made of mechanical aids in the production of castings. The sand, for instance, from which the moulds are made, is brought to the moulder by overhead conveyor. He merely pulls a lever and the required quantity of sand falls into one half of the moulding box. It then receives the pattern, which is pressed home by hydraulic ram. Simultaneously, the other half of the box is being prepared by another moulder. When ready, the two halves are clamped together and pushed down a roller ramp on to an endless conveyor which takes them past the cupola. At this point moulders pour the molten iron from ladles into the " gates " in the " green sand." The conveyor, still moving, carries the mould away from the cupola and back to the other end of the foundry, during which time the casting cools and solidifies. When this has occurred, a ram pushes the box from the conveyor on to a vibrating screen, where the sand is shaken out and disappears underground to be made use of again. The halves of the box are then separated, hung on another conveyor, which takes them back to the moulders, while the castings are removed, the " gates " and " runners " knocked off for use as scrap in the cupola, and the castings start on their journey through the fettling shops, from which they emerge ready for the stores.

Another section of the works which interested the visitors was the large press shop. The modern tendency is for domestic appliances to be made of pressed steel sheet, and this department, with its presses up to 300 tons, is capable of dealing with anything of this nature, however large. The sheets, previously " blanked " or cut to size, are formed to final shape by means of heavy costly steel dies. More than 200 of these forming operations may be involved in the production of the finished parts for one cooker alone.

Gas Street Lighting Charges at Durham are being increased by 12½% by the Durham City Gas Company.

PARTINGTON GAS-WORKS VISITED

BY invitation of the Members of the Manchester Corporation Gas Committee a visit was paid to the Partington Gas-Works on Oct. 20. Among those who attended were the Members of the Manchester City Council and a number of their Chief Officials, the President of the Manchester District Association of Gas Engineers, Mr. J. MacLusky, many representatives of gas undertakings adjacent to Manchester, and also representatives of the Ministry of Fuel and Power, of labour organizations associated with the gas industry, of the Regional Gas Engineering Advisory Board, of the Lancashire Coke Association, and of contractors engaged on current contracts at the Partington Works.

In a brochure issued for the occasion it is mentioned that plans for the further development of the works were drawn up by the Committee in 1945-46, when it was decided to proceed with the erection of a new carburetted water gas plant by Humphreys and Glasgow, Ltd., capable of producing 6 mill. cu.ft. of gas per day. This plant is in course of erection, together with the necessary ancillary plant, including separate relief gasholder, and will commence to make gas about Whitsuntide, 1949.

An entirely new departure in gas-works practice is on the point of inception and is the subject of an agreement about to be completed between the Corporation and Petrochemicals, Ltd., who are erecting a new petroleum-chemicals plant adjacent to Partington Works. Under the terms of this agreement, Petrochemicals, Ltd., will supply daily, by direct pipeline to the Partington Works 600,000 cu.ft. of high calorific value residual gas from the Company's "Catarole" plant which will commence the production of aromatic hydrocarbons and olefinic gases towards the end of the year. The olefines will be used for chemical synthesis while the residual gases, consisting mainly of methane, hydrogen, and a little ethane, will be eminently suitable for dilution and subsequent distribution as part of the normal town gas supply. The "tail" gas to be supplied will have less than 5% of inert constituents and less than 0.6% oxygen. It will be free from sulphuretted hydrogen, tar, and oil; the naphthalene content will not exceed 0.1 grain per 100 cu.ft. and the calorific value will be approximate to 890 B.Th.U. per cu.ft. It is proposed to use the "tail" gas for the enrichment of blue water gas from the new plant mentioned above.

The blue gas will have a calorific value of 290 B.Th.U. per cu.ft. and the quantity required for diluting the 600,000 cu.ft. of oil gas will be approximately 1,650,000 cu.ft. per day. Any balance of blue water gas production not required for dilution purposes will be enriched in the normal way by gas oil. On an annual basis, the extra quantity of gas provided by the project will be of the order of 800 mill. cu.ft., representing about 9% of the total gas made in Manchester.

Like the majority of other large cities, Manchester is in urgent need of more gas to supply the increasing demands of homes and industries. Compared with 1939, there has been an increase in the demand for gas amounting to 43% and large additional loads are under consideration by several industrial consumers.

In addition to the above projects, the Committee has entered into a contract with the Woodall-Duckham Company for a new vertical retort house capable of producing 4 mill. cu.ft. of gas per day, together with coal and coke handling plant. When these new extensions are complete, the works will be able to transmit 18½ mill. cu.ft. per day; two and one-third times its present capacity.

The Gas Committee has made preparations to meet the continually increasing demand for gas. When the new plants are working at Partington, together with others at Bradford Road Works, the undertaking will be in a position to meet all demands satisfactorily—and, in fact, close down the obsolete and uneconomic plant which has had to be worked during and since the war in order to keep the supply going. The capital cost of the new works will be of the order of £3 mill.

The visit was preceded by a luncheon in the Town Hall, which was presided over by the Lord Mayor of Manchester, Alderman Miss M. L. Kingsmill Jones, O.B.E.

The Guests

Councillor **C. E. P. Stott,** Chairman of the Gas Committee, in proposing the toast of "Our Guests" extended a very hearty welcome to all those who had attended the function. He outlined the evolution of the Manchester gas undertaking, which to-day was one of the largest in the country. He referred, specifically, to the Partington Works which, at present, is capable of producing approximately 25% of the undertaking's total make. The undertaking was now supplying almost 50% in excess of sales in 1939, and the manufacturing plant was, with difficulty, meeting this heavy increase. Referring to recent temporary restrictions in supply, he said that these were created by still further increases in demand. In the past two days, the undertaking was called upon to meet daily a demand for gas of approximately 31.5 mill. cu.ft. This was a figure with which it could not consistently cope under present conditions. Stocks in the two days had been reduced by 9 mill. cu.ft. Plans for reconstruction and extension of the plant were being implemented as quickly as the supply of materials allowed, and temporary arrangements had been made to cater, so far as was possible, with the coming winter load. Through the good offices of a neighbouring undertaking, a gas producer had been obtained which was to be installed in February, and neighbouring undertakings had agreed to augment supplies. The effect of the temporary arrangements made, together with the scheme for acquiring rich oil gas which would be introduced in December, would, between December, 1948, and March, 1949, result in gradually increasing the quantity of gas available by something like 3 mill. cu.ft. per day.

The **Lord Mayor of Manchester** (Alderman Miss M. L. Kingsmill Jones, O.B.E.), in responding to the toast, made reference to the ever-increasing demands for gas, and indicated that these were, in some measure, a guide to the progress of civilizing influences, and were a contributory factor to improving health and the amenities available to the citizen. In speaking of the good work done by those in control of the undertaking over many years past, the Lord Mayor said it was not without a pang that they were to experience the passing of the works into other hands. The services to be given in the future by those concerned in the gas industry should, however, be given just as conscientiously in the future as it had been in the past.

The Gas Industry

Mr. **James MacLusky** (President of the Manchester District Association of Gas Engineers: Engineer and Manager of the Halifax Corporation Gas Department) proposed the toast of "The Gas Industry." As the President of the Manchester District Association he said he was very pleased to be present, particularly having regard to the fact that his father had also been President of the Association in 1929, and, like himself, wore the Presidential Badge in token of his office upon a similar occasion in Manchester. It was also very pleasing to him to find that Alderman Sir William Kay (Chairman of the Partington Station Sub-Committee) was to respond to the toast, as the Partington Gas-Works were his original conception. In the year 1929 Alderman Sir William Kay realized that it would be most fitting that a works should be established in close proximity to the Manchester Ship Canal, in a new industrial area, and that a large trunk main should be laid for the supply of gas to the City of Manchester and the intervening districts. It had so happened that the whole scheme had not yet come to fruition but, under the new Area Gas Board, undoubtedly the works would be one of the selected gas-producing stations of the future. Continuing, Mr. MacLusky referred to the great firms of constructional gas engineers who had been associated with the establishment at Partington—namely, West's Gas Improvement Company, Ltd., the Woodall-Duckham Company, Drakes, Ltd., R. and J. Dempster, Ltd., and Simon-Carves, Ltd., representatives from all of whom were present.

Alderman **Sir William Kay** (Chairman of the Partington Station Sub-Committee) responded. He remarked that the construction of the Partington Gas-works had proved to be most fortunate for the City of Manchester, and also for the future controllers of the gas industry. Its situation upon the banks of the Manchester Ship Canal had enabled it to arrange a site for the new chemical undertaking known as the Petrocarbon Company, Ltd., which produced surplus gas, thus enabling the Gas Department, it was expected, to supply the public with a cheaper and adequate supply of gas.

Following the luncheon the party inspected the Partington Works, after which they were entertained at tea.

Alderman **W. P. Jackson** (a former Chairman of the Gas Committee) proposed a vote of thanks to the Chairman and Members of the Gas Committee for their hospitality, and to their staff for the excellent arrangements that had been made.

Alderman Sir **William Kay** responded.

CANNOCK HOMECRAFT COURSE

The second women's homecraft course under the auspices of the Cannock Branch of the Women's Gas Council was inaugurated at the gas showrooms on Oct. 15 by Mr. L. N. Burtonshaw, Sales Manager of the Cannock District Gas Company, who welcomed the capacity audience on behalf of the Company and expressed regret for the absence of Mr. T. E. Parry, Engineer and General Manager. The Branch Chairman, Mrs. F. Ballance, introduced Miss M. Godby, Technical Adviser to the Women's Gas Council, who gave the first lecture on "Ways and Means." Miss Godby briefly explained the organizing of the home in the present difficult times, the planning of the week's work, and the division of income. The film in technicolor "The Nation's Wealth" was shown in support of the lecture.

The lectures and demonstrations are being held every Friday evening and will cover a period of 10 weeks. During this period such subjects as simple home decorations, home dyeing and ironing, dressmaking, cutting out and pressing, care of children, carefree cookery, home and community will be covered.

The number of ladies attending and the interest displayed appears to indicate that the second course will be as successful as that held last year.

INSTITUTION EDUCATION SCHEME

REPORT OF THE BOARD OF EXAMINERS: 1948

THE Board of Examiners of the Institution of Gas Engineers has submitted to the Gas Education Committee for presentation to the Council of the Institution its Report on the 1948 Examinations held under the Education Regulations of the Institution. The Report states that during the year 1947-48, the members of the Board of Examiners and Assessors appointed by the Council were:—

Major Courses. Examiners: W. Hodkinson (Chairman: Manchester); F. L. Atkin (Birmingham); J. H. C. Bates (Cambridge); A. Bujnowski, M.C. (Glasgow); H. P. Lupton, B.Sc. (Liverpool); J. M. A. Mitchell (Newcastle-upon-Tyne); F. W. Sansom, M.B.E. (Exeter); H. Wadsworth (Bath);—Gas Engineering (Supply). L. J. Clark, B.E.M., B.Sc. (London); D. L. Copp (London); C. A. Deas (London); R. M. Farror (London; N. Hudson (Mirfield); H. W. Moys, B.Sc.(Eng.) (London); J. M. Webber (Croydon); F. White, B.Sc. (London).

Assessors: West of Scotland: J. M. Dow (Paisley); *David Fulton (Helensburgh); W. M. Gledhill (Stirling). East of Scotland: D. D. Melvin (Edinburgh); J. W. Napier, M.B.E. (Dunkeld)—Gas Engineering (Manufacture) and (Supply).

*Retired April 28, 1948.

More Candidates

A pleasing aspect of the 1947-48 Examinations was the increased number of candidates in both the Ordinary and Higher Grades of Gas Engineering (Manufacture) and (Supply). While this is in part due to the fact that candidates from three intensive courses were entered, the total entries exceeded last year's by far more than can be accredited to this cause, and the much greater proportion of internal candidates reflects the resuscitation of teaching in Gas Engineering (Manufacture) and (Supply) at a number of technical colleges. In the Gas Engineering (Supply) examinations there was (with the exception of the Diploma) an improvement in the general standard of answers submitted, and there were a few exceptionally pleasing scripts. It is hoped that some of the candidates for the Higher Grade Examination in this branch will proceed to take the Diploma in Gas Engineering (Supply), for which there is usually a lamentably small number of entrants.

The Board regrets that it cannot report an equal improvement in the quality of the work of the candidates in the Gas Engineering (Manufacture) examinations. This was, in general, of a lower order than it has come to expect. A study of the percentages of first class passes, second-class passes, and failures does not necessarily reveal the true picture, for it was found, particularly in the examinations in Gas Engineering (Manufacture), that far too many of the second class passes were on the border-line between a pass and failure, and too few on that between the first and second-class pass.

It was noticed that some candidates commenced their answers by copying out the question in full. Such a practice may serve to collect the candidate's thoughts and may ensure his proper understanding of the question but it is a laborious process, taking no inconsiderable time which must be regarded as representing lost opportunity of convincing the Examiners. At the same time the Board feels that many candidates attempt the answering of question too hastily, without giving attention to the planning of the answers, with the result that these are frequently rambling and contain much irrelevant matter. If before attempting their replies candidates would make a note, on a spare piece of paper, of the points they intend to include, they would have a better opportunity of marshalling the facts in an orderly and logical sequence, and of placing emphasis where it is most appropriate.

An analysis of results achieved by candidates entered as internal candidates by technical colleges again indicates that whereas those from some colleges are remarkably and consistently good others are equally disappointing. This was also a feature of last year's examinations, and the Board hoped that it was representative of a temporary condition due perhaps to the interruption of approved courses by war conditions. Its repetition, however, causes the Board again to stress to teachers the importance of ensuring that candidates for the examinations, particularly in the Ordinary Grade, should have reached a satisfactory standard before being entered.

Intensive Courses

As with last year's examinations, the candidates from intensive courses have accredited themselves very satisfactorily, as a study of the following tables will confirm.

Results of students attending the Higher Grade Intensive Full-time Course at the Bradford Technical College:

Class	Supply (6) No.	%
1st, with Distinction	—	—
1st	3	50.0
2nd	3	50.0
Fail	—	—

Results of students attending the Higher Grade Intensive Full-time Courses at the Brighton Technical College:

Class	Manufacturing (13) No.	%	Supply (15) No.	%
1st, with Distinction	—	—	1	6.7
1st	—	—	6	40.0
2nd	9	69.2	7	46.6
Fail	4	30.8	1	6.7

Results of students attending the Higher Grade Intensive Full-time Courses at the Cambridgeshire School of Technology and Art, Cambridge:

Class	Manufacture (15) No.	%
1st, with Distinction	—	—
1st		—
2nd	14	93.3
Fail	1	6.7

Comparative Schedule of Examination Candidates

Subject	Grade	1947 Internal	1947 External	1948 Internal	1948 External
Gas Engineering (Manufacture)	Ordinary	75	35	102	55
	Higher	54	49	72	41
	Diploma	—	14	—	13
Gas Engineering (Supply)	Ordinary	78	49	135	61
	Higher	38	17	63	13
	Diploma	—	2	—	1
Certificate in Gas Supply		—	1	—	—
Total		245	167	372	183
Grand total		412		535	

Ordinary Grade Gas Engineering (Manufacture)

Class	Internal (102) No.	%	External (55) No.	%	Total (157) No.	%
1st with Distinction	—	—	—	—	—	—
1st	5	4.9	3	5.5	8	5.1
2nd	52	51.0	28	50.9	80	50.9
Fail	45	44.1	24	43.6	69	44.0

Lack of Experience

There were 47 more entrants for the examination than last year, the ratio of internal to external students being greater. In general, the standard of the answers was low, as is shown by the fact that out of a total of 157 there were 69 failures, and of the passes 34 were below 53%. Knowledge was general and somewhat vague. Where detailed knowledge was required the number of candidates who attempted the question was comparatively small. Many candidates showed by their answers that they lacked practical experience. The Board appreciates that frequently this is not the fault of the candidates, and realizes that their duties sometimes preclude the possibility of their spending much time on the works or on the district. The Board, nevertheless, desires to emphasize the necessity of practical training, and urges employers to extend as far as is practicable facilities for practical training to the young men in their undertakings.

Higher Grade Gas Engineering (Manufacture)

Class	Internal (72) No.	%	External (41) No.	%	Total (113) No.	%
1st with Distinction	—	—	—	—	—	—
1st	1	1.4	1	2.4	2	1.8
2nd	45	62.5	14	34.2	59	52.2
Fail	26	36.1	26	63.4	52	46.0

Disappointing

There were 10 more candidates than last year, but the ratio of internal to external candidates was very much higher. The table shows that the former achieved considerably greater success than the latter. The fact that only two entrants out of 113 reached first-class standard, and 46% failed, indicates that the results were disappointing and representative of a standard below that expected of Higher Grade candidates.

The questions offered great scope for a well-informed candidate to display his knowledge. The answers required a suitable balance of practical and theoretical information. This was to be found, however, only to a medium degree. There was a surprising lack of knowledge of precautions which should be taken on a works, and it was obvious that very few candidates were aware of the Voluntary Rules for the Safe Operation of Purifiers or of the Voluntary Rules to be observed in the Repair and Inspection of Gasholders. The Board of Examiners considers that Higher Grade candidates ought to be familiar with such important publications, which are generally included in

the Reports of the Chairmen's Technical Committee of the Institution of Gas Engineers, presented annually at the Autumn Research Meetings of the Institution.

Diploma Examination

There were 13 entrants for the Diploma in Gas Engineering (Manufacture) Examination, of whom two retook the written examination only, and two retook the home paper only. Of the remaining nine, eight took both the written examination and the home paper, one taking the home paper only. No theses were submitted. The home papers submitted in which Question 2 had been selected were, with one exception, well presented, several of them exceptionally so. It is disappointing to report that the standard of the answers submitted in the written examination was considerably below that of the home papers. Although most of the candidates passed, it was a matter of regret that some who had submitted such excellent home papers should have displayed only a mediocre knowledge of gas engineering called for in the written examination. The answers did suggest, however, that most candidates were familiar with current literature.

Ordinary Grade Gas Engineering (Supply)

Class	Internal (135)		External (61)		Total (196)	
	No.	%	No.	%	No.	%
1st with Distinction..	—	—	1	1.6	1	0.5
1st	19	14.1	8	13.1	27	13.8
2nd	72	53.3	28	45.9	100	51.0
Fail	44	32.6	24	39.4	68	34.7

There were 69 more entrants for this examination than last year and the ratio of internal candidates has increased from 63% to 68%. The standard exhibited varied very considerably, there being, on the one hand, a more than usually high percentage of first-class papers, including one from an external candidate which was eminently praiseworthy, and, on the other hand, several which were extremely poor. The Examiners received the impression that, on the whole, the general technical principles involved were reasonably well appreciated but many candidates had great difficulty in expressing themselves clearly and others were unable to apply these principles to specific cases. Sketching was satisfactory, and it was pleasing to observe the use made by some candidates of sketches which were not specifically demanded.

Higher Grade Gas Engineering (Supply)

Class	Internal (63)		External (13)		Total (76)	
	No.	%	No.	%	No.	%
1st with Distinction..	1	1.6	1	7.7	2	2.6
1st	13	20.6	—	—	13	17.1
2nd	34	53.9	10	76.9	44	57.9
Fail	15	23.9	2	15.4	17	22.4

It is gratifying to record that in this examination there is a marked increase in the number of entrants and also in the quality of the answers submitted. The number of failures was much lower than usual, and the first-class passes considerably higher.

While the answers submitted to one industrial question in Part I were indifferent, those given to the industrial question in Part II were much better and, on the whole, there was an improvement in this respect over the performances of past years. In connexion with the industrial utilization of town gas, the Board desires to record for the guidance of teachers that it intends, as far as possible, to confine questions in the examinations to matters of principle. As was indicated at the Gas Education Conference held in June, 1948, two aspects of the industrial utilization of gas might be considered by teachers in the subject, the first relating to the fundamental principles upon which the design of industrial equipment is based, and the second to the detailed consideration of industrial apparatus associated with particular trades. While it is clearly desirable in order to fill the technical needs of gas undertakings in industrial areas associated with particular industries that students in these areas are given instruction in the latter of the above-mentioned aspects, it is hoped that such instruction will not be included in the curriculum to the exclusion of the proper treatment of the former, which is regarded as essential.

One candidate entered for the Diploma in Gas Engineering (Supply) Examination, and failed in the written examination and in the home paper.

Supplementary Examinations

In its Report on the 1948 (Supplementary) Examinations, the Board states that the 27 candidates—16 Higher Grade Gas Engineering (Manufacture), 11 Higher Grade Gas Engineering (Supply—were, with two exceptions, internal students of the Central Technical College, Birmingham, where they had completed a full-time intensive course, including the main and relevant ancillary subjects. The remaining two candidates were internal part-time students of the College who had been given special permission to attend the lectures in the main subject. One of these two students obtained a second-class pass while the other failed.

The tables below indicate that the standard exhibited by the full-time students was quite up to that which has come to be expected of full-time students at intensive courses. The Board desires to congratulate the students upon a creditable performance, and the teachers responsible for main subject tuition upon the thoroughness with which the syllabus has apparently been covered. In this connexion, it was pleasing to note that in the supply examinations most students were familiar with the appropriate British Standards and Codes of Practice and, in general, current literature seems to have been well perused.

As has been mentioned in connexion with former examinations conducted for intensive course students, there is a lack of practical experience. The Board does not regard this with undue anxiety, since the theoretical foundations are firmly established and the students will be able readily to take advantage of future opportunities of applying their knowledge to practical problems.

The results of the Intensive Course students are shown in the following tables:

Higher Grade Gas Engineering

Class	Manufacture		Supply	
	No.	%	No.	%
1st with Distinction..	—	—	—	—
1st	1	7.1	3	27.3
2nd	12	85.8	7	63.6
Fail	1	7.1	1	9.1

PROTECTING THE CONSUMER

The administrative policy pursued by the Government for the protection of the consumer in industries where full competition does not operate has been discussed by Mr. Herbert Morrison, M.P., Lord President of the Council, in a speech to a conference of the British Institute of Management at Scarborough.

Pointing out that there were virtual monopolies in private enterprise, Mr. Morrison said that over some of the field of public ownership competitive conditions prevailed. That was true, for example, of the three Airways Corporations, and of some of the activities of public corporations, notably some of the ancillary activities of the National Coal Board and the road transport activities of the British Transport Commission.

Though there was a wholesome public distrust of monopoly, it was widely realized that competition could mean waste, the uneconomic duplication of plant, and a failure to secure the full benefits of large-scale production. The tendency towards a reduction in the number of producing units was inevitable in a large number of industries and was often desirable in the interests of efficiency. The use of State Departments for the running of trading services was at the moment rather out of fashion, though for many years we had had in the Post Office a good example of an efficient business run by Civil Servants. "I have always felt myself that it was a matter for argument whether electricity and possibly gas supply could not have been handled in the same way."

In this country, said Mr. Morrison, we had been for some years moving away from the conception of a board representative in whole or part of consumers. Recent legislation had accordingly set up boards consisting of individuals who, from past experience and present qualities, might be expected to secure that the service was given efficiently, and had given them in the governing statute a broad indication of the way in which they are expected to serve the public interest. It has been usual to make provision for consumers' councils, and care had been taken to secure that the council contained representatives of the board providing the service. Thus the council became not merely a sounding board for the grievances of consumers, but a place where consumer and producer could discuss their respective difficulties.

In the case of a public concern operating on the basis that financially it must break even over a number of years, there was no danger of any gross exploitation of the consumer for the sake of high profits. We should see great economies in socialized industries, due to the avoidance of unnecessary duplication and to other causes, especially after we had passed through the present period of shortages and other difficulties which hampered the public and private sectors of industry alike. There were dangers to be guarded against: the risk of a rather expensive service being provided, with its inevitable reactions on price; the risk of a public board tending to be too conservative in its financial enterprise, knowing that it would have to account publicly for its expenditure. Then there was the relative position of consumer and worker, particularly in the case of socialized industries employing large numbers of workers where labour costs constituted a high proportion of the cost of production.

In regard to general exploitation, the public boards provided a reasonable safeguard that there would not be a gross discrimination between consumers.

In another address to the Chairmen of Councils and the Directors of the Industrial Co-operative Research Association, Mr. Morrison stressed the vital place that the Research Associations held in preventing Britain dropping back into the position of a third-rate power. The key to increasing productivity was more knowledge—knowing as much as possible about resources and their use, and, above all, knowing how to use what we know.

Sunderland Town Council has accepted the estimate of the Sunderland Gas Company for the supply of 290 gas cookers and 580 gas wash-boilers for new housing schemes.

THE COAL-FIRED GAS TURBINE

(A "GAS JOURNAL" Abstract)

In a paper to the London Section of the Institute of Fuel F. B. Karthauser, W. V. Battock, and F. F. Ross discuss a form of equipment which is not yet in being but which presents considerable possibilities in certain limited fields. They make certain assumptions which on the technical side are based on known factors and are believed to be justified, and on the financial side are based on estimates of The gas turbine plant has no latent heat to be disposed of, and only if there is intercooling (Fig. 3) will any cooling water be required and this of the order of 5 to 10% of the amount needed by an equivalent steam plant. A list is given of the 21 existing gas or oil-fired turbine plants in commission or under construction. As high as 34% efficiency is claimed for two of them.

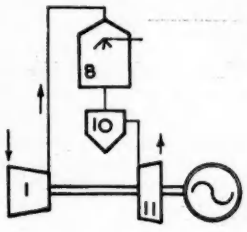


FIG 1. SIMPLE OPEN CYCLE.

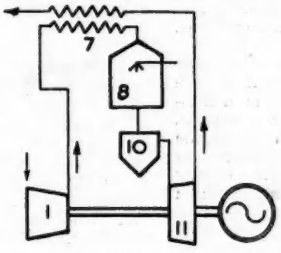


FIG 2. REGENERATIVE OPEN CYCLE.

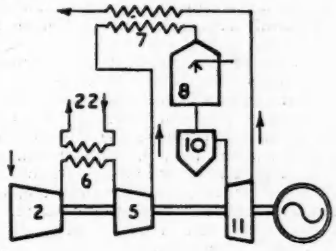


FIG 3. REGENERATIVE OPEN CYCLE WITH INTERCOOLING.

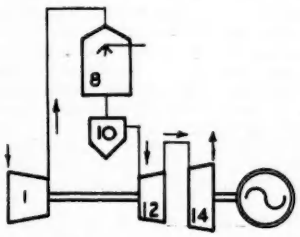


FIG. 4. TWO-SHAFT SIMPLE OPEN CYCLE WITH L.P. WORK TURBINE.

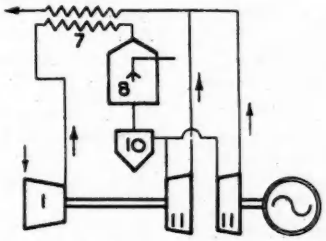


FIG 5. TWO-SHAFT REGENERATIVE OPEN CYCLE WITH TURBINES IN PARALLEL

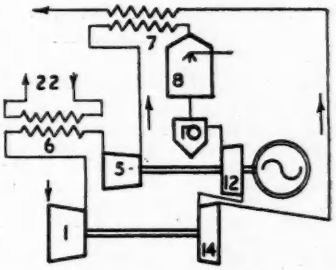


FIG 6. TWO-SHAFT REGENERATIVE CYCLE WITH INTERCOOLING H.P. WORK TURBINE DRIVING H.P. COMPRESSOR.

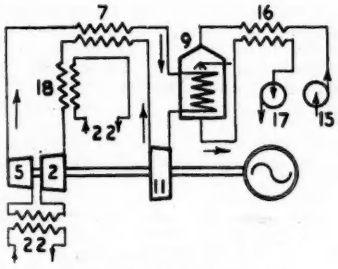


FIG 7. A-K AERODYNAMIC OR CLOSED CYCLE. (IN SIMPLIFIED FORM.)

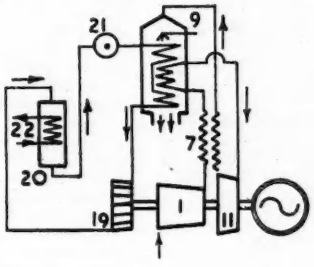


FIG 8. KARRER CYCLE.

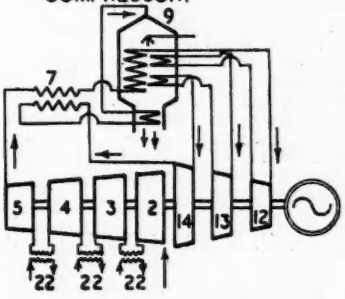


FIG 9. INDIRECTLY HEATED OPEN CYCLE WITH MULTI-STAGE INTERCOOLING & REHEATING.

Key to Cycle Diagrams.

1. *Compressor.*
2. *Low press. compressor.*
3. *& 4. Intermediate press. compressor.*
5. *High pressure compressor.*
6. *Intercooler.*
7. *Heat-exchanger.*
8. *Combustion chamber.*
9. *In Fig. 8: Boiler with air heater. In Figs. 7 and 9; Air heater only.*
10. *Gas cleaner.*
11. *Turbine.*
12. *High press. turbine.*
13. *Intermediate press. turbine.*
14. *Low pressure turbine.*
15. *F.D. fan.*
16. *Combustion air preheater.*
17. *I.D. fan.*
18. *Precooler.*
19. *Steam turbine.*
20. *Condenser.*
21. *Water feed pump.*
22. *Cooling water.*

capital costs of oil-fired turbines and the known costs of coal-fired steam power plant.

Possible cycles are set out in a diagram which is here reproduced. The paper is confined to installations making use of Cycles Figs. 1, 2, and 3, with which the order of possible efficiencies with turbine inlet temperature 650° C. would be 18, 25, and 27.5% respectively.

There are various ways of using the waste heat in the turbine exhaust which make the coal-fired gas turbine very attractive. On the other hand the difficulties are formidable. With regard to fuel costs, the present trend is for the cost of oil to rise relatively to that of coal. For small powers the gas turbine has little advantage over the diesel engine unless it can use coal, and then the additional cost of coal-

burning equipment and the reduction in efficiency must not be too great. Ash in the coal presents the greatest problems of all and great ingenuity has already been displayed in devising ways of dealing with it. The conclusion is that the coal-fired equivalent of an oil-fired plant of about 25% efficiency is expected to have an efficiency of about 20%.

The open cycle gas turbine with waste-heat boiler offers good prospects. It is a draw-back of back-pressure steam plant that the power output is limited in practice to about 7% of the heat input unless the capital cost of high pressure equipment is incurred together with that of expensive feed-water treatment. The gas turbine offers at least 14% power output. But the over-all thermal efficiency of this combination is not as high as that of good back-pressure steam plant where every pound of steam raised is needed and fully utilized. Waste heat could be ideally used at the collieries for the direct drying of coal dust.

The possibilities of the coal-fired gas turbine on the locomotive are being explored in the U.S.A. Many difficult problems have been encountered and solutions found; others await solutions. The thermodynamic efficiency of the steam locomotive is so low (and it requires a good grade of lump coal) that the diesel locomotive, with fuel costing four or five times as much per B.Th.U. but which is five or six times as efficient, is a serious competitor. "In the U.S.A. the majority of new orders are for diesels." It is not thought that the coal-fired gas turbine will find favour for ship propulsion.

The conclusions are, that the coal-fired gas turbine will cost more and be less efficient than one using a distillate oil in the same cycle. It is likely to be economic where good use can be made of the exhaust gases or where it is an auxiliary to steam plant. In central power generation there is a "possibility that a combined steam and gas turbine plant could be significantly cheaper per installed kW. and not less efficient than existing steam plant." Finally, "the success of the coal-fired gas turbine will depend on the solution of many problems."

TWO NEW BRITISH STANDARDS

The British Standards Institution has recently issued British Standard 1469: 1948, "Coal tar liquid fuels." This standard has been prepared at the request of the Association of Tar Distillers and incorporates a revised version of B.S. 503: 1933, "Creosote for fuel in furnaces." It also covers another type of coal tar fuel which is known as "creosote/pitch" mixture ("C.T.F.200"). The specification covers specific gravity, viscosity, liquidity, flash point, and gross calorific value, and includes limits for water, ash, carbon residue, and matter insoluble in toluole. Sampling and test methods are described in appendices. Copies of this standard may be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1, price 2s. 6d. post free.

The Standards Institution has also issued a revised edition of British Standard 517: 1938, "Cresylic acid of specified orthocresol content." The revision was undertaken at the request of the Standardization of Tar Products Tests Committee, and the principal alterations, as compared with the last edition published in 1938, are that an upper limit, together with a range of variation of 5%, have been specified as regards orthocresol content, and a new clause dealing with residue of distillation has been inserted. The specification also provides for specific gravity and distillation, and includes limits for water, neutral oils, and pyridine bases, hydrogen sulphide, and freedom from acids and alkalis. Methods of sampling and analysis are specified. Copies of the standard may be obtained from the Institution, price 2s. 6d. post free.

U.S. GAS SALES INCREASED

The American gas industry's revenues from all classes of sales totalled 1,475 mill. dollars in the year ended June 30, 1948, states the American Gas Association's "Report of Utility Gas Sales for the Second Quarter of 1948." This figure corresponds to a rise of 11.6% when contrasted with revenues of 1,322 mill. dollars in the comparable period of a year ago.

Domestic revenues, which represent the largest source of income, were up 10.5%, advancing from 832.7 mill. dollars to 920.2 mill. dollars in the current cumulative period. Revenues from commercial sales showed a gain of 14.2% and during the same period last year, advancing from 170.6 mill. dollars to 194.9 mill. dollars. During the same period industrial sales rose 13.0%, increasing to 359.9 mill. dollars.

Dealing with manufactured gas, the report says that during the 12 months ended June 30, 1948, revenues from sales advanced 10.1%, increasing from 403.8 mill. dollars in the comparable period a year ago to 444.4 mill. dollars. Domestic revenues were approximately 392.2 mill. dollars, equivalent to a rise of 9.1% when contrasted with revenues of 301.6 mill. dollars in the comparable cumulative period of last year. Commercial and industrial revenues against 13.6 and 12.9% respectively. Sales of manufactured gas in the year ending June 30, 1948, were 4,462,000 mill. cu.ft. and increase of 3.3% from sales a year ago. The largest percentage gain was reported for commercial gas sales which were up 7.7%, while domestic and industrial gas sales rose 3.2 and 0.6% respectively.

INDUSTRIAL WELFARE

Changes in the law regarding employers' liability and the coming into force of the National Insurance Scheme and the amendment to the Factories Act, are of considerable importance to industrial managers and executives.

This fact gives special interest to the Industrial Welfare Society's postal course in Industrial Law, which is kept continuously up to date with new developments and changes in the law which has now been successfully conducted for some years. The course consists of six lectures and covers the whole field of employment and factory law.

Particulars of the course can be obtained on application to the Secretary, Industrial Welfare Society, 14, Hobart Place, Westminster, London, S.W.1.

NEW HOMES FROM OLD

The pressing need for housing accommodation has focused attention on the conversion of existing houses into flats. To give publicity to the most effective and economical methods, an exhibition was staged at the Cambridge Guildhall recently, sponsored by the Women's Voluntary Services, with ample support from the Cambridge University and Town Gas Light Company and other local business concerns. Mr. J. Hunter Rioch, Managing Director of the Company, was among those who supported the Mayor of Cambridge when Lady Reading, Chairman of the W.V.S., performed the opening ceremony.

The exhibits were planned to suggest ways and means to convert houses into flats, one of the most interesting being a model bed-sitting room which appeared particularly cosy with its modern gas fire and mantel surround. In the model kitchen, gas was featured for cooking. "Mr. Therm" also received telling publicity in a topical sketch presented each evening, when the stage setting represented a kitchen equipped with a gas cooker and sink water heater.

A film programme presented by the Central Office of Information included the gas industry production "A New Kitchen." The principal stand devised by the Gas Company concentrated on demonstrating the contribution has could make in any conversion scheme. Cooking, water heating, refrigeration, space heating, and laundering were all covered, and examples of appliances displayed. Further visual guidance for converting houses into flats was provided by a series of photographs contributed by the British Gas Council.

A HOME SERVICE CELEBRATION

On Oct. 21 the Gas Light and Coke Company held a party at Gunter's, Park Lane, W.1, to celebrate 50 years of Home Service. What began in 1895 as a one-woman show restricted to gas cooking had grown by 1939 into a flourishing Home Service Section with a corps of 52 women experts who lectured on cookery, dietetics, kitchen planning, and home laundry.

The Section was disbanded during the war, when almost all its staff was absorbed by various Ministries. In 1946 it was revived, and Mrs. Joan Robins was appointed Chief Home Service Adviser. The staff now numbers half its pre-war strength, but it is hoped to build it up to about 50 in a year or so. Each Home Service Adviser is a fully qualified expert. Each one undergoes at least two years' training in domestic subjects before joining the Company, and then receives two months' intensive technical training in the Company's research centre, offices, and showrooms, followed by a six-weeks' course of demonstration training. She is then fully equipped to deal with the many problems which face her in an ordinary day's work. The demand for the Section's services is greater than ever.

The first Home Service Adviser was Miss Ida Cameron, who began in 1895 to make house-to-house visits to help housewives with the new gas cookers becoming popular in London. When Miss Cameron retired in 1903 the sales of cookers were soaring, and her successor, Miss Helen Edden, had a small staff to help her. In addition to house-to-house visiting, demonstrations were given in public halls. In 1910 Miss Ethel Williams joined the Company as the eighth member of Miss Edden's staff. She stayed for 32 years, and her influence on the Section was profound. Miss Williams was a natural successor as Principal of the Home Service Section when, in 1921, Miss Edden retired.

The first of 23 demonstration theatres on the Company's own premises was opened in 1925, but demonstrations were not confined to the Company's own theatres. The Home Service Advisers also attended exhibitions and conferences and were invited to give lectures before every kind of woman's association, institute, and club. In 1937, over 100,000 people attended the 1,700 demonstrations given by the Home Service staff.

The war interrupted this helpful and educational work, but it made it more necessary and more valuable than ever. Every month over a thousand housewives are helped in their own homes, and in addition between 2,500-3,000 come to cookery demonstrations held in halls, institutes, and the Company's own demonstration theatres.

BRITISH ROAD TAR ASSOCIATION

SOME OF THE PAST YEAR'S ACTIVITIES

A NUMBER of changes have occurred in the Committees of the British Road Tar Association in the course of the year. Mr. G. H. Fuidge found it necessary, in view of increased responsibilities, to resign his Chairmanship of the Technical Committee and was succeeded by Mr. H. C. Hitchcock. The road tar industry owes a debt of gratitude to Mr. Fuidge for his counsel and the services he has rendered since the Technical Committee was reconstituted in 1945 and the Managing Council has suitably recorded its appreciation. Mr. Ivor Jones, who assumed the Chairmanship of the new Propaganda Committee in 1945 and revolutionized the publicity and propaganda activities of the Association, resigned on leaving the country last autumn.

Contact has been maintained throughout the year with Government Departments and other organizations closely concerned with road tar or road problems. The Association is represented on a number of kindred organizations either by its Technical Adviser or by members of its Managing Council and Technical Committee.

Research and Experiment

The Association has continued its active co-operation with the Road Research Laboratory of the Department of Scientific and Industrial Research on an agreed programme of research and experiment financed on a 50-50 basis. The work is under the immediate supervision of the Road Tar Research Committee, a Committee of the Department of Scientific and Industrial Research, on which each party has six representatives, under the Chairmanship of Mr. J. Davidson Pratt. Broadly the object is to improve the quality of road tar and the methods of using it in road construction and maintenance. The main lines of investigation as set out in the 1948-49 programme can be summarized as follows:

(i) a study of the action of weather on tar and tar surfacing materials, with particular reference to the action of oxygen on the tar and the development of an improved durability test for tar;
(ii) a study of chemical treatments to improve the resistance of tars to deleterious oxidation;
(iii) the development of improved laboratory performance tests for tar emulsions;
(iv) work on the problem of ensuring good adhesion in surface dressing when using wet stone in bad weather;
(v) an investigation of the effect of local conditions of traffic, climate, aggregate and tar on the design and performance of tarmacadam;
(vi) an investigation into methods of improving resistance of dense tar surfacing to deformation in hot weather under heavy traffic.

The programme of laboratory research is backed by an extended series of road experiments, designed to correlate the laboratory results with behaviour on the road—the acid test—and to determine the practical value of any new proposals. These full-scale experiments cover surface dressings, tar carpets, tarmacadam and dense tar surfacings.

One of the basic problems is to determine the reasons for the deterioration with time of a tarred surface, particularly one of the open textured type and to find a cure for it. This involves the difficult problem of the development of a laboratory test for durability which will give results comparable with behaviour on the road. Great progress has been made and a promising test seems near at hand. Its fruition has been delayed by difficulties in getting the necessary apparatus and the anomalous behaviour of certain types of tar.

Design of Tar Carpets

Another urgent problem is the design of tar carpets. Further road trials have been made in different parts of the country with local aggregate and local tar to determine the best range of proportions of the different constituents to produce a durable non-skid tar carpet. Already useful information is emerging from these road trials.

Work has been continued on the important practical problem of surface dressing in wet weather and a booklet entitled "Surface Dressing with Tar in Wet Weather" on the results of the road experiments to date has been published and sent to all surveyors. The trials show conclusively that the main cause of failure arises from rain within 24 hours of completing the job, and that the addition of any of the adhesion or wetting agents so far tested confers no advantage over straight tar; the addition of such agents to the stone, however, gives greater promise of success. The problem is now to find an economic and practical method of treating the stone in this way; work to this end is in progress.

The Technical Committee has continued actively to watch the technical interests of the road tar industry and to maintain close liaison with the research and experimental work of the Road Tar Research Committee. Its two most important subjects have been surface dressing and tar carpets.

Early in 1947 it was apparent that owing to the state of our national economics, there was likely to be a substantial reduction for several years in the amount of money made available for road construction and maintenance. The cuts of about 25% which were subsequently made in the staffs of local authorities taken in conjunction with the reduced funds, made it clear that new road construction would practically cease and that the most that surveyors could do would be to endeavour to maintain as many of their roads as they could in serviceable condition. Surface dressing provides the most economical means of doing this. In order to assist those responsible for the work, the Technical Committee has prepared a Code of Practice for surface dressing which was circulated last autumn not only to members of the Association, but also to surveyors and contractors. Some 4,500 copies were issued up to the end of June. This is a comprehensive document covering all aspects of surface dressing and dealing not only with the older hand methods, but also with mechanical tank spraying. The use of the latter is extending rapidiy as it not only effects substantial economies in man power, but also in general gives a better assurance of a more efficient job. The Technical Committee has also been considering the problem of how far it can help surveyors and contractors in the provision of mechanical tar spraying equipment, particularly under present conditions when owing to the drive for increased exports, the engineering industries are unable to devote much time to the design and manufacture of new equipment for home use.

Technical Service

A booklet entitled "Technique of Surface Dressing with Tar" was prepared by the Road Research Laboratory in collaboration with Mr. Fuidge to supplement the instruction given in the film and issued to those attending the showings of the film.

Over a year ago a set of lantern slides was prepared on the subject of surface dressing. The set has now been extended and improved. Good use of the slides has been made by travelling representatives in talks to men on the job, especially during the period which elapsed before the film was ready. The need for the slides still exists and they form a valuable supplement to the film.

The subject of tar carpets has occupied a good deal of the time of the Technical Committee. There is an imperative need for the early production throughout the country of a design of medium or open textured tar carpet which can compete with the open textured bitumen carpets. The Committee made a study of all the available information and submitted a report to the Managing Council, which has, on the latter's instructions, been transmitted to all road tar suppliers. A satisfactory carpet can be made with a tar binder and the Committee's report makes a number of recommendations with the object of establishing the reputation of tar carpets among users of road materials. One of the recommendations that has already been put into effect is that arrangements should be made, if necessary on the initiative of the road tar suppliers, for trial lengths of tar carpet to be laid in various parts of the country. The "medium texture" carpet appears to be the one most appropriate for tar as it gives a non-skid surface comparable with that of an open texture bitumen carpet. The development of a durability test is of special importance in the development of a satisfactory tar carpet.

The Technical Adviser (Mr. W. E. Cone) and the three travelling representatives (Messrs. Glayzer, Lee, and Milton) have imparted technical advice to suppliers and users of road tar throughout the country. While this work is not spectacular, it forms an important adjunct to the service provided by individual road tar suppliers. Its helpful and impartial nature is appreciated by those concerned and redounds to the credit of the Association.

Certification Trade Mark

The Certification Trade Mark scheme has continued in satisfactory operation and Mr. N. H. Jackson, the Association's accredited officer, has paid periodical visits to the works of the license holders to satisfy himself regarding the records of routine tests and to take samples for independent check tests by the Association's official analyst. While the scheme is operating well, a number of difficulties have arisen, some undoubtedly due to variations in analytical procedure and have been investigated by the Technical Committee. The need for greater precision in the definition of test procedure has been referred to the Standardization of Tar Products Tests Committee.

Thirty-five members of the Association and one non-member now hold licences under the Certification Trade Mark scheme and 71 different works are involved.

At the beginning of the year there were 14 District Tar Boards. Now there are 13, due to the dissolution of the Sheffield and Lincs Board and the absorption, by agreement of all concerned, of its area into the Eastern, Midland, and Yorkshire Tar Board areas. Ten of the Tar Boards held the usual annual meeting for the review of progress. The Technical Adviser was present at all of them, the Chairman at nine and the Secretary at six. Two others had purely formal meetings with no B.R.T.A. representative present, and the last had to be deferred indefinitely because of the illness of its Secretary.

THE WORLD'S LARGEST TAR PRODUCER

THE annual dinner of the British Road Tar Association was held at the May Fair Hotel, Berkeley Street, London, W.1, on Oct. 26, the President, Colonel H. C. Smith, C.B.E., J.P., D.L., presiding.

The **President,** after submitting the loyal toast, said Mr. Hugh Gaitskell, Minister of Fuel and Power, had hoped to be present, but at the last moment he had found it impossible to attend. At very short notice Sir Guy Nott-Bower, K.C.B., Deputy Secretary of the Ministry of Fuel and Power, had undertaken to propose the toast of "The Association."

Sir **Guy Nott-Bower** said this was to be his last public appearance as a civil servant. In three or four days' time he was forsaking the civil service and taking up service under the National Coal Board. On behalf of Mr. Gaitskell he paid tribute to the work of the Association and to assure them how closely and appreciatively it was watched by Parliament. The Association was founded about 1925, when, after the first world war, there was a very big programme of road construction in hand, and consequently a very big demand for road tar. Some extraordinarily questionable stuff was sold and put on the roads, and road tar thus got a bad name. The big tar producing industries got together and formed the Association, and since that time invaluable work had been done by the Association. Users of road tar could now be quite certain that they were buying a scientifically prepared product.

The British Road Tar Association was one of the best possible examples of co-operative, scientific, and practical effort by three great industries acting together, the advantages of which accrued not only to the interests of the industries concerned but to a very much wider circle. In the coal carbonizing industry the by-products of one industry became the raw materials of many other industries—chemicals, dyestuffs, and so forth—and anything that conduced to providing a stable market for road tar was to the advantage of a wide circle The production and sale of road tar was a matter of vital importance to the carbonizing industries, and no single factor had contributed so much to those sales as the work of the Association.

The **President,** responding for the Association, said Sir Guy Nott-Bower was leaving what might be called the quiet and calm of the Civil Service for the noisier world outside, and as the day of his transfer drew nearer he imagined that he might be repeating the Civil Servant's theme song:

"For forms of Government let fools contest
Whate'er is best administered is best."

The proposer had referred to the formation of the Association and the fact that it was a voluntary association which had functioned very successfully over a period of very many years. He wondered whether it was appreciated that next year the Minister of Fuel and Power would represent the largest individual tar producer in the British Isles, if not in the world. Over 2 mill. tons of tar were distilled in this country every year, and the bulk of it was produced at gas-works and at coke ovens controlled by the National Coal Board. The remainder came from independent coke ovens and from coke ovens connected with steel works and there was now a possibility that the Government would, before another 18 months had passed, own the whole production of tar in this country.

The amount of tar produced was considerable, and it was of the highest importance that it should be sold in the most profitable markets. To the layman it might seem wasteful to put tar, which contained potentially so many valuable by-products, on to the roads. But the quantities of tar which were converted into those by-products were comparatively small, and the bulk of the tar available had to be dealt with in the most profitable way; and that way was to put it on the roads.

The Association existed to promote the use of tar, and this was helped by active co-operation with the Road Research Laboratory of the Department of Scientific and Industrial Research on an agreed programme of research which was financed on a 50-50 basis, and by propaganda designed to appeal to the buyer and user of road tar.

Mr. **Stanley Robinson,** a Vice-President, proposed the toast of "The Guests." While regretting the absence of the Minister of Fuel and Power, as well as that of the Minister of Transport, whose company they appreciated last year, he said that generally speaking it was extremely good of Ministers to attend such dinners. As a pure tar distiller he wanted to congratulate the Minister on the appointment of Mr. Sylvester and Colonel Smith as the Chairman and Deputy-Chairman designate of the Gas Council. He did not think it would have been possible for a better choice to have been made.

Sir **Charles Ellis,** Scientific Member of the National Coal Board, in response, wished the Association the greatest measure of success in the research and investigation which it was carrying out, the results of which would enable it to play a very important part in British industry.

Major **H. E. Aldington,** of the Ministry of Transport, who also responded, said it was up to the tar industry in collaboration with the engineers to strive for the production of an ideal material, supplied to an ideal specification, at a reasonable price.

S.B.G.I. GOLF

The S.B.G.I. Golfing Circle held their Autumn Meeting at Effingham on Oct. 20, when members played for the Yates Bowl, which was won by Mr. J. Simpson. The afternoon greensome competition was won by Mr. C. T. C. Woodall and guest.

1948 "JOURNAL" DIRECTORY

In order to keep the Directory information up to date, the following alterations and corrections which have been notified during the past month should be noted in the 1948 issue of the "JOURNAL" Calendar and Directory:

Page 10.—BARROW-IN-FURNESS: P. R. Dawson, *E. & M.*, vice W. M. Gabbatt.

,, 40.—IPSWICH: C. A. Spriggs, *S.*, vice A. W. Mather.

,, 62.—RUGBY: Delete R. J. Meiklejohn, *E., M. & S.*, deceased.

,, 68.—SOUTHWOLD: W. D. Crick, *M.D. & S.*; T. W. C. Denny, *W.M.*

,, 98.—STEVENSTON: Delete J. O. Crawford, *E. & M.*

,, 166.—LONDON AND SOUTHERN JUNIOR GAS ASSOCIATION: D. G. Winslow, *Hon. Treasurer*, vice S. J. Gibbons.

The Next Examinations for Graduateship and Associate Membership of the Institution of Heating and Ventilating Engineers will be held in London and provincial centres, and if necessary overseas, on April 9, 1949. Intending candidates for these examinations are reminded that they must first submit a completed proposal form for membership in the appropriate grade. In order to ensure consideration of the forms in time for admission to the examinations they should be forwarded to the Secretary of the Institution before the end of this year. Candidates who have previously been accepted for the examination must submit an examination application form before Feb. 28, 1949 (Jan. 31 in the case of overseas candidates).

COMPANY MEETING

GEORGE WILSON GAS METERS, LTD.

The Twelfth Ordinary Annual General Meeting of George Wilson Gas Meters, Limited, was held at Baginton on Oct. 26, Mr. W. D. Wilson, B.E.M., Assoc.Inst.Gas E., Chairman and Managing Director, presiding.

The Chairman, in the course of his speech, said: I hope you will agree with me that the figures again indicate a reasonably satisfactory state of affairs. Your Directors have so arranged their policy that the year under review has borne a large measure of the financial burden of the plans made to ensure strength for the future, and accordingly considerable attention was devoted to the establishment of our Jarrow factory, which is now adequately equipped.

We have, during the year, developed and placed on a sound footing the small gas meter business acquired in the previous year, the financial position of which is referred to in a note on the balance sheet.

In regard to the export trade, we are now finding considerable resistance, due almost entirely to cost. Our competitors from the Continent and America are often able to quote more favourable terms.

Of the future, it is still difficult to essay an opinion as circumstances are as confusing as ever. In my humble view, private enterprise is being condemned out of hand by people not best able to judge and without being given even a fair opportunity to prove the theorists wrong.

Your Directors have always been enthusiastic in their desire to pursue a policy of expansion, but such a policy clearly necessitates capital being available, and if the funds which would otherwise be to hand are to be absorbed by Government taxation then I believe that we must face the fact that the opportunity for initiative and enterprise will pass, since finance for re-equipment or expansion can no longer be devoted to such fundamental essentials.

The report and accounts were adopted, and a dividend of 15%, less tax, was declared.

The retiring Director, Mr. F. C. Wilson, was re-elected.

GAS STOCKS AND SHARES

Market conditions throughout the week were on the dull side and the number of bargains recorded on the London Stock Exchange in the week ended on Thursday evening fell to 34,522, against 36,353 for the previous week, Thursday's total of 6,126 being the lowest for several weeks. British funds advanced from an average of 112.93 to 113.01, and the level of industrial shares showed a slight rise of 0.2. The new £100 mill, British Electricity issue had little effect beyond a minor adjustment of existing gilt-edged prices to conform with the new loan. The Bill for the nationalization of the steel industry was formally read a first time in the Commons, and iron and steel shares tended to mark time pending the issue on Friday of the full text of the Bill.

Business in gas shares was more or less normal, with a total of 225 bargains during the week against 239 for the previous week. Of the few price changes the majority were upwards. Gas Light and Coke ended the week at 23s. 6d., a rise of 3d., the compensation price under the Gas Act being 23s. 4d.

The rises and falls were as follows:

OFFICIAL LIST

Alliance and Dublin, cons. ord....	22/	— 24/	+ 6d.
Bournemouth, 6 p.c pref. ...	124	—129	+ 1
British Gas Light, 4 p.c. red. deb.	93	— 98	+ 1
Gas Light and Coke, ord. ...	23/	— 24/	+ 3d.
Imperial Continental	111	—116	+ 1
South Eastern Gas Corp.... ...	22/	— 23/	+ 6d.
South Metropolitan, ord. ...	100	—105	+ 1
Do. 3 p.c. perp. deb. ...	82	— 87	+ 1
United Kingdom, 4 p.c. 1st red. cum. pref.	19/	— 20/	— 3d.

Quotations on the London Stock Exchange

When last ex-Dividend		Dividends Interest. Total for Year %	NAME.	Quotations Oct. 28
Sept.	15	4	Alliance & Dublin Cons. Ord.	22/ —24/
Apr.	28	5	Asscd. Gas & Water U'd'tgs Ord. ...	22/3—23/3
,,		6	Do. Deferred	23/ —24/
Sept.	1	4½	Do. 4½ p.c. Red. Cum. Pref.... ...	20/ —21/
,,		4	Do. 4 p.c. Red. Cum. Pref.	19/ —20/
,,		4	Do. 4 p.c. Irred. Cum. Pref.... ...	18/3—19/3
Aug.	18	7	Barnet Ord. 7 p.c. max.	154—159
Aug.	16	5	Bath Cons. Ord. 5 p.c. basic	103—108
Sept.	17	6½	Bombay, Ltd., Stock	46/- -49/-
Aug.	18	8½	Bournemouth Std. 5 p.c. sliding scale ...	164—169
,,		7	Do. 7 p.c. max. div.	153—158
,,		4	Do. 4 p.c. Pref.	96—101
,,		6	Do. 6 p.c. Pref.	124—129
,,		3½	Do. 3½ p.c. Red. Deb.	95—100
June	16	4	Do. Perp. 4 p.c. Deb.	96—101
Aug.	18	5·35	Brighton, &c., 5 p.c. Std. Cons.	102—107
,,		6·3	Do. 6 p.c. Std. Cons.	111—116
June	16	5	Do. 5 p.c. Perp. Deb.	117—122
Aug.	4	5	Bristol, Gen. Cap. 5 p.c. max.	112—117
June	16	4	Do. 4 p.c. New Deb. Red.	95—100
Sept.	29	7½	Brit. Gas Light Ord.	127—132
June	16	5½	Do. 5½ p.c. 'B' Cum. Pref.	108—113
,,		4	Do. 4 p.c. Red. Deb.	93— 98
Aug.	4	10	Cambridge U. & T. Orig. 10 p.c. Cons. ...	190—200
,,		5	Do. 5 p.c. Cons. 'C'	95—100
,,		7	Do. 7 p.c. Cons. 'B.'	135—140
Apr.	14	4½	Cape Town, Ltd., 4½ p.c. Cu. Pf.	18/ —20/
Oct.	13	6½	Cardiff Con. Ord.	118—123xd
Mar.	10	5	Cheltenham, 5 p.c. basic Cons. Ord. ...	102—107
June	16	4	Do. 4 p.c. Perp. Deb.	95—100
Aug.	4	5½	Chester United Ord.	107—112
June	2	7	Colombo Ltd., Ord.	27/ —32/
,,		7	Do. 7 p.c. Pref.	22/ —24/
Sept.	29	5	Colonial Gas Assn. Ltd. Ord.	16/ —18/
,,		8	Do. 8 p.c. Pref....	24/6—26/6
Aug.	4	5	Commercial Ord.	89— 94
June	2	3	Do. 3 p.c. Deb. Perp....	72— 77
Aug.	18	5	Do. 5 p.c. Irred. Deb....	107—112
,,		6	Croydon sliding scale	118—123
,,		5	Do. max. div.	102—107
,,		4	Do. 4 p.c. Irred. Pref.	95—100
June	30	4	Do. 4 p.c. Perp. Deb....	95—100
,,		5	Do. 5 p.c. Perp. Deb....	120—125
Aug.	18	8	Derby Cons. Ord.	134—139
June	16	4	Do. 4 p.c. Red. Deb.	93— 98
Aug.	4	5	East Hull Ord.	93— 98
Aug.	18	5	East Surrey 'B,' 5 p.c.	98—103
,,		6	Do. 6 p.c. Cum. Pref....	117—122
June	30	5	Do. 5 p.c. Irred. Deb.	117—122
Sept.	1	6⅞	East Wight Cons. Ord.	108—113
Aug.	18	5	Eastbourne 'A'	97—102
,,		3½	Do. 'B'	94— 99
June	16	5	Gas Consolidation Ord. 'A'	20/6—22/6
,,		5	Do. Ord. 'B'	20/6—22/6
May	19	4	Do. 4 p.c. Red. Cum. Pref.	17/6—19/6
Aug.	4	5	Gas Light & Coke Ord.	23/ —24/
,,		3½	Do. 3½ p.c. max.	78½— 81½
,,		4	Do. 4 p.c. Con. Pref.	99—102
July	14	3½	Do. 3½ p.c. Red. Pref....	97—100
June	2	3	Do. 3 p.c. Con. Deb.	86— 89
,,		5	Do. 5 p.c. Deb.	104—107
,,		4½	Do. 4½ p.c. Red. Deb.	104—107
Sept.	1	3½	Do. 3½ p.c. Red. Deb....	94— 99
Aug.	4	5	Gloucester Cons. Ord.	94— 99
Feb.	11	4	Great Yarmouth (8½ p.c. max)	13 — 14
Sept.	1	7½	Guildford Cons. Ord.	132—137
Aug.	18	5	Hampton C't, 5 p.c. Cons. Ord.	95—100
Sept.	1	5	Hartlepool G. & W. 5 p.c. Ord.	94— 99
Oct.	13	6	Hastings & St. L. (5 p.c. Std.)	97—102xd
,,		5	Do. (3½ p.c. Std.)	80— 85xd
June	16	7½	Holyhead & N. Wales Ord.	20/6—22/6
Sept.	15	5	Hornsey 3½ p.c. Std.	89— 94
,,		6⅞	Do. 5 p.c. Std	110—115
May	19	8¾	Imperial Continental Cap.	111—116
July	14	3½	Do. 3½ p.c. Red. Deb....	100—105
Sept.	1	7½	Lea Bridge Co., Cons. Ord....	134—139
Aug.	4	5½	Liverpool 5 p.c. Ord.	121—126
Sept.	15	7½	Luton Cons. Ord. 'A'	152—157
,,		6½	Do. Ord. 'B'	115—120
July	14	7	Malta & Med'n., 7 p.c. 1st Pref.	110—115
,,		7½	Do. 7½ p.c. 2nd. Pref....	110—115
,,	18	5½	M.S. Utility 'A' Cons.	100—105
,,		3½	Do. 'B' Cons.	70— 75
,,		5	Do. 'C' Cons.	102—107
,,		4	Do. 4 p.c. Cons. Pref.	96 —101
May	19	2	Montevideo, Ltd. Ord.	100—103
Aug.	4	5½	Newcastle and Gateshead Ord.	24/6—25/6
June	30	3½	Do. 3½ p.c. Perp. Deb.	93— 98
Aug.	4	8½	Newport (Mon.) Cons.	95—100
June	16	5	Do. 5 p.c. Perp. Deb....	111—116
Sept.	29	6½	North Middlesex 6 p.c.	123—128
,,	18	5	Do. 5 p.c. Pref.	105—110
Aug.	18	5	Northampton Cons.	104—109
Aug.	4	9¾	Oxford, Cons. Ord.	205—215
June	2	5⅝	Plymouth & Stonehouse Ord	108—113
,,		8½	Do. Addl.	13¾— 14¾
,,		7½	Do. New	13 — 14
Sept.	15	5	Do. 5 p.c. Deb. Perp....	118—123
Aug.	18	7½	Portsmouth & Gosport Cons.	146—151
,,		5	Do. 5 p.c. max.	100—105
Aug.	4	10	Preston 'A'	178—183
,,		7	Do. 'B'	125—130
June	24	46	Primitiva Holdings, Ltd. Ord.	9/6 —11/6
June	16	6	Do. 6½ p.c. Red. Cum. Pref.	99—104
Aug.	18	5	Reading, 5 p.c. max.	97—102
,,		3¾	Do. 3¾ p.c. Red. (Non-Cum.) Pref....	94— 99
June	16	4	Do. 4 p.c. Perp. Deb....	92— 97
Aug.	18	5	Romford, Ord.	110—115
Sept.	15	7½	Severn Val. Ltd. Ord.	22/3—23/3
,,		4½	Do. 4½ p.c. Cum. Pref.	20/6—21/6
Sept.	1	6½	Sheffield Cons....	143—148
June	30	4	Do. 4 p.c. Red. Deb.	94— 99
Sept.	1	6	South East'n Gas Ltd. Ord.	22/ —23/
,,		4½	Do. 4½ p.c. Red. Cum. Pref.	20/9—21/9
,,		4	Do. 4 p.c. Irred. Cum. Pref.	19/—20/-
Aug.	4	5	South Metropolitan Ord.	100 —105
,,		6	Do. 6 p.c. Irred. Pref....	123 —128
,,		4	Do. 4 p.c. Irred. Pref.	97 —102
June	30	3	Do. 3 p.c. Perp. Deb.	82 — 87
July	14	5	Do. 5 p.c. Red. Deb.	98 —103
Aug.	4	5	South Suburban Ord. 5 p.c.	112 —117
,,		5	Do. 5 p.c. Perp. Pref....	108 —113
,,		4	Do. 4 p.c. Perp. Pref....	94 — 99
,,		3¾	Do. 3¾ p.c. Red. Pref....	90 — 95
June	16	5	Do. 5 p.c. Perp. Deb....	119 —124
Sept.	15	5½	South West. G. & W. Ltd. Ord.	19/—21/-
Aug.	4	5	Southampton Ord.	102 —107
Aug.	18	6	Sunderland Ord.	113 —118
Aug.	4	4½	Swansea Ord.	82 — 87
,,		5½	Do. 5½ p.c. Red. Pref.	100 —105
Sept.	15	7	Swindon Cons. Ord.	114 —119
Aug.	4	5	Tottenham Ord.	115 —120
,,		5	Do. 5 p.c. Pref.	108 —113
,,		5½	Do. 5½ p.c. Irred. Pref.	120 —125
June	2	4	Do. 4 p.c. Perp. Deb....	96 —101
Oct.	13	6.85	Tunbridge Wells, 4 p.c. Sliding	122 —127xd
,,		7	U. Kingdom Ltd. Ord.	22/9-23/9xd
May	19	4½	Do. 4½ p.c. 1st Cum. Pref.	22/ —23/
,,		4	Do. 4 p.c. 1st Red.Cum.Pref.... ...	19/ —20/
June	16	4½	Do. 4½ p.c. 2nd Non.Cum.Pf.... ...	19/ —20/
Sept.	15	3½	Do. 3½ p.c. Red. Deb....	93 — 98
Aug.	18	6⅝	Uxbridge, &c., 5 p.c.Cap.	120 —125
,,		5	Do. 5 p.c. Pref.	107 —112
June	16	5	Do. 5 p.c. Perp. Deb.	118 —123
Aug.	4	5	Wandsworth Cons.	118 —123
,,		4	Do. 4 p.c. Pref....	97 —102
June	16	5	Do. 5 p.c. Irred. Deb....	122 —127
,,		4	Do. 4 p.c. Irred. Deb....	95 —100
Aug.	4	5	Watford & St. Albans Ord.	117 —122
,,		5	Do. 5 p.c. Pref.	107 —112
,,		5½	Do. 5½ p.c. Pref.	120 —125
,,		5	Weymouth Ord. (5 p.c. Basic)	92 — 97
Aug.	18	10½	Woking District "A" Ord....	180 —190
,,		7.35	Do. "B" Ord....	127 —132
Aug.	4	7½	Wolverhampton Cons. Ord.	119 —124
Sept.	15	5	York Cons. Ord.	97 —102

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GAS UNDERTAKINGS' RESULTS

Plymouth and Stonehouse Gas Light and Coke Company

The Directors have decided to pay a dividend on Jan. 1, 1949 for the half-year ended Sept. 30, at the rate of £5% per annum on the Ordinary stock, 7s. 6d. per share on the Additional shares, and 7s. per share on the New shares (Act 1879), less tax. Transfers must be lodged not later than 5.30 p.m. on Dec. 9.

Blackburn Gas Department

Mr. J. D. Ashworth, Engineer and Manager, states in his annual report that the amount of gas made in the year ended Mar. 31—1,679,536,000 cu.ft.—showed an increase of 4.7% over the previous year, and 76.5% over the last pre-war year. A considerable amount of work was done during the year in connexion with the laying of mains and services, and Mr. Ashworth states that the necessity to continue this work shows no sign of slackening. Consideration has been given to the preparation of a programme for the ensuing 12 months and exploratory work is going on with a view to providing new linking mains to develop further the supply of gas in adequate volume and at suitable pressures throughout the area of supply. The economic situation has not permitted the restoration of hire-purchase facilities for gas appliances, but sales have been encouraging and there has been a considerable extension in the use of gas for industrial and commercial purposes. Gross profit was £33,246 against £48,686 for the previous year, and after deduction of interest charges, debt redemption, and income tax there was a net profit of £7,503. The net debt outstanding was £195,233.

Warrington Gas Department

The annual report of the Engineer and Manager, Mr. T. D. Olver, for the year ended Mar. 31 shows that the sales of gas amounting to 1,544,604,025 cu.ft. (6,950,718 therms) are a record in the history of the undertaking, being an increase of 11% over the previous year and 74% over the pre-war figure. The total income of £519,631 is an increase over the previous year of £44,724 and the total expenditure of £451,122 an increase of £47,552, leaving a gross profit of £68,509 compared with £71,337, a decrease of £2,828, which is more than accounted for by the increased contribution to the rate fund of £9,476 due to the revaluation of the undertaking. After making provision for loan charges (£29,395), income tax (£20,731), and contribution to renewals fund (£5,000), the net revenue account reveals a net profit of £13,316. The accumulated surplus now stands at £32,889. To meet the increasing demand for gas, a new vertical retort plant should come into operation in November and a start has already been made on a further new plant, with a rated capacity of approximately 2 mill. cu.ft. per day. A scheme of further extensions, including new holder, purification plant, washers, condensers, detarrer, and coal sidings, has been approved in principle by the Ministry of Fuel and Power.

Stockport Gas Department

The make and sales of gas in the year ended Mar. 31 again represented a record in the history of the undertaking, gas sales, at 8,892,460 therms, showing an increase of 0.85% over the previous year. Gross profit was £53,243, a decrease of £3,140 compared with the previous year, and the disposable balance was £20,082. Among the allocations from this balance was an item of £5,400 as contribution to general rate fund. Outstanding debt was increased by £52,205 to a total of £392,845, equivalent to £178 15s. 2d. per mill. cu.ft. of gas made. Purchase tax had a detrimental effect on the sales of certain types of gas appliances, and although the position in regard to deliveries eased in certain directions there was still the necessity, in respect of some appliances, to have a waiting list. The number of appliances sold was 7,963, with a value of £118,414, a decrease of 444 in number but an increase of £23,445 in value. The hope was expressed a year ago that a new carburetted water gas plant would be operative in June, 1948, but although the Department has done its part in the preparations it is not expected, owing to unforeseen difficulties in material fabrication, that it will be working before next January. Mr. T. Reynolds, Engineer and Manager, referred in his previous report to proposed new works. His present report states that some little progress has been made with the Ministry of Fuel and Power and other Government Departments, but in view of impending nationalization they have not given any information of a definitive character.

Chesterfield Gas Department

Mr. C. S. Davies, Engineer and Manager, in his annual report gives an outline of present and proposed development of the Chesterfield Corporation Gas Department. Now under construction is an extension to the carbonizing plant and a 2 mill. cu.ft. gasholder, which it is estimated will cost a total of £203,593. Approval in principle has also been given to the renewal of the existing six beds of horizontal retorts and the installation of a further 2 mill cu.ft. gasholder, the latter to replace two small holders which have passed their useful life. This plant, together with an additional purchase of coke oven gas, will enable the undertaking to cope with a maximum daily load of 8 mill. cu.ft.—nearly three times the maximum load of 10 years ago. The report shows record annual gas sales of 1,440 mill. cu.ft. and an income of £215,770, with a gross profit of £15,345 and a net profit of £1,699. Gas sales last year increased by 9% in volume and 12% in value. An analysis of gas sales shows 49% heavy industrial, 11% light industrial or commercial, and 40% domestic.

The Aeromatic Co., Ltd., Aero Works, 187, Brent Crescent, North Circular Road, N.W.10, has published a booklet in colour answering questions about its "Aeromatic" gas injector. An interesting feature deals with some recent installations and conversions to gas-firing.

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